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COMPANY A, CORPS OF ENGINEERS,
IN THE MEXICAN WAR

A thesis presented to the Faculty of the U.S. Army
Command and General Staff College in partial
fulfillment of the requirements for the
degree

MASTER OF MILITARY ART AND SCIENCE



by

STEPHEN R. RIESE, MAJ, USA
B. Architecture, University of Notre Dame,
Notre Dame, Indiana, 1982
M.S., Kansas State University, Manhattan, Kansas, 1992

Fort Leavenworth, Kansas
1995

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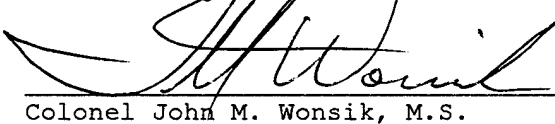
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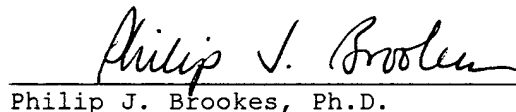
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The opinions and conclusions expressed herein are those of the student author and do not necessarily represent the views of the U.S. Army Command and General Staff College or any other governmental agency. (References to this study should include the foregoing statement.)

ABSTRACT

COMPANY A, CORPS OF ENGINEERS, IN THE MEXICAN WAR by Major Stephen R. Riese, Corps of Engineers, USA, 164 pages.

Company A, Corps of Engineers, is the first permanent regular engineer company in the U.S. Army. Congress authorized the company on 15 May 1846, two days after declaring war on Mexico. The company organized at West Point, New York, deployed to Mexico and participated in both General Zachary Taylor's northern campaign and in General Winfield Scott's campaign from Vera Cruz to Mexico City. After the war, in 1848, Company A returned to West Point and began instructing cadets in the practical application of military engineering. The three lieutenants that led the company through the Mexican War all later became general officers in the Civil War: Gustavus W. Smith, George B. McClellan and John Gray Foster.

This thesis investigates the role Company A played in the Mexican War. It presents both a historical accounting of the company's activities in the war and an analysis of the tactical contribution that Company A made to the U.S. Army's war effort.

The contribution of Company A to the U.S. Army in the Mexican War was significant. General Scott frequently cited his engineers as key to his successes. Other generals relied on engineer officers to provide them with detailed reconnaissance, recommendations on routes of advance and leadership on the battlefield. The engineers orchestrated the siege of Vera Cruz, repaired roads and trails throughout the theater, built bridges, and fought as infantry in close combat.

ACKNOWLEDGMENTS

I express my appreciation to all who have assisted me in this endeavor. Dr. J. Patrick Hughes, my committee chairman, has provided me with advice and understanding. His help enabled me to make the leap backwards in time a hundred and fifty years to gain a proper perspective. Colonel Gregory Fontenot unknowingly started me on this quest in August 1989 when he embarrassed me by knowing more about the history of my company (A Company, 1st Engineer Battalion) than I did. Colonel Fontenot and Colonel John M. Wonsik helped me keep my feet on the ground and offered valuable suggestions throughout, particularly concerning the observations in Chapter 6. Dr. Dale R. Steinhauer helped me greatly by putting a face on the soldiers of the company. His wealth of material on enlisted soldiers in the mid-nineteenth century included a complete roster of the engineer company in 1846, which I have included, with his permission, in Appendix B. Aaron P. Mahr and Douglas Murphy, from the Palo Alto Battlefield National Historic Site, were not only gracious hosts during the 1995 Mexican War Conference but also provided me with valuable information, including Lieutenant Smith's map of the march from Matamoros to Tampico that I used in constructing Figure 8. My wife, Velora, has been very understanding and supportive this past year--much more so than I could have been if our roles were reversed. And my wonderful children, Kevin, Brian and Jessica, can finally have some time on the computer!

TABLE OF CONTENTS

| | <u>Page</u> |
|--|-------------|
| APPROVAL PAGE | ii |
| ABSTRACT | iii |
| ACKNOWLEDGMENTS | iv |
| LIST OF ILLUSTRATIONS | vi |
| CHAPTER | |
| 1. INTRODUCTION | 1 |
| 2. GENESIS OF COMPANY A | 19 |
| 3. THE NORTHERN CAMPAIGN | 35 |
| 4. THE SIEGE OF VERA CRUZ | 52 |
| 5. TO THE HALLS OF MONTEZUMA | 74 |
| 6. OBSERVATIONS AND RECOMMENDATIONS | 127 |
| GLOSSARY | 140 |
| APPENDIX | |
| A. CHRONOLOGY OF EVENTS | 142 |
| B. ROSTER OF COMPANY A, CORPS OF ENGINEERS | 146 |
| ANNOTATED BIBLIOGRAPHY | 151 |
| INITIAL DISTRIBUTION LIST | 163 |

LIST OF ILLUSTRATIONS

| Figure | Page |
|---|------|
| 1. Text of the Congressional Act Authorizing the Company of Sappers, Miners and Pontoniers, 15 May 1846 | 28 |
| 2. Established Rates of Pay in the U.S. Army, 1846-1847 | 29 |
| 3. Recruiting advertisement from the <i>Bangor Whig and Courier</i> , June-July 1846 | 30 |
| 4. Recruiting advertisement from the <i>Bangor Whig and Courier</i> , December 1846 | 31 |
| 5. The Mexican War Theater | 45 |
| 6. The Northern Theater of the Mexican War | 46 |
| 7. Brazos Santiago and Surrounding Area | 47 |
| 8. Route of March from Matamoros to Tampico | 48 |
| 9. Scott's Route from Tampico to Mexico City | 68 |
| 10. The Siege of Vera Cruz | 69 |
| 11. Scott's Campaign from Vera Cruz to Mexico City | 111 |
| 12. The Battle of Cerro Gordo | 112 |
| 13. The Valley of Mexico | 113 |
| 14. The Battle of Contreras | 114 |
| 15. The Battle of Churubusco | 115 |
| 16. The Battle of Molino del Rey | 116 |
| 17. The Storming of Chapultapec | 117 |
| 18. The Battle at Garita de San Cosme and Mexico City | 118 |

CHAPTER 1

INTRODUCTION AND METHODOLOGY

Tension resulting from American westward expansion and Mexican nationalism grew quickly after the annexation of Texas on 4 July 1845, and was at a pitch by April 1846. On 24 April 1846, General Zachary Taylor¹ sent Captain Seth Thornton² with a patrol of sixty-three dragoons to investigate a report of Mexican troops crossing the Rio Grande near Matamoros, Mexico. The following morning, Thornton's force rode into an ambush by Mexican regulars. The Americans fought back, but the Mexican attackers killed, wounded, or captured every man in Thornton's party.³ This outbreak of hostilities was the spark President James K. Polk needed to urge the American Congress to declare war on Mexico, which they did on 13 May. Thus officially began the "unavoidable war," ostensibly a border dispute--the War with Mexico.⁴

In addition to the ensuing call for volunteers, the declaration of war also gave impetus to fill a long-standing requirement of the military academy at West Point for engineers to assist in instruction to the cadets. Prior to 1846, the academy had only engineer officers, including foreigners, to provide instruction on engineer matters. On 15 May 1846, Congress authorized the "organization of a company of sappers, miners and pontoniers."⁵ The instruction, however, would have to wait--the war presented a more urgent need for the engineers. The new engineer company immediately saw action in the Mexican War, initially

under General Zachary Taylor and ultimately under General Winfield Scott⁶, before its return to West Point in 1848. The company, known as Company A, Corps of Engineers, has been on continuous active duty in the U.S. Army since its founding, and is today known as A Company, 1st Engineer Battalion.⁷

Purpose

The purpose of this thesis is to determine the contribution of the engineer company to the American forces in the Mexican War. Some elements of this determination are already available. The actions of individual engineer officers such as Captain Robert E. Lee and Lieutenants Gustavus W. Smith, P. G. T. Beauregard and George B. McClellan⁸ are known through memoirs, field reports and other sources. These officers' future roles in the American Civil War guaranteed that their early careers would be well researched, analyzed and recorded. From these sources, we can also piece together a fairly complete list of the missions performed by the engineer company. For a number of reasons, the campaigns and battles of the Mexican War are also well recorded. Not least among these reasons is that the War with Mexico was the first war recorded both in print and in the new medium of photographs. What is not immediately available is an estimate of the tactical benefit provided by the young engineer company in the battles and of their effect on the overall war effort. This thesis attempts to fill those gaps.

Thesis Statement

I will show that this new engineer company, Company A, provided a significant contribution to the American Army in the Mexican War in the areas of mobility, reconnaissance, siege operations and battlefield leadership. Author John C. Waugh, commenting on the army's need in 1846 for a company of engineers, states: "Such a company had long been needed."⁹ Is Waugh correct? General Scott recognized that several classes of recently graduated West Point officers had a significant impact on the conduct of the war and said: "that but for our graduated cadets the war between the United States and Mexico might, and probably would, have lasted some four or five years."¹⁰ Among the group of officers Scott referred to were Lee, Smith, Beauregard and McClellan, all engineers. It was not just the officers, however, who contributed to Scott's success. I will present the actions of both the officers and the soldiers to support the thesis.

The War with Mexico and the engineer company's contribution to the war are important issues. Discounting brief incursions into Canada, the War with Mexico was our country's first foreign war. It is the first war in which U.S. forces decisively defeated a foreign army.¹¹ The Mexican War also served as a training ground for many of the young officers who would become generals in the American Civil War.

The Mexican War exploits of the future Civil War generals is both interesting and important. McClellan and Smith were officers in Company A.¹² Lee and Beauregard were Corps of Engineer officers who worked directly with Company A. Because of the company's unique organization and missions, the officers of the company had unusually

direct access to the generals who commanded brigades, divisions and the army itself. As mentioned above, Scott frequently cited his "West Point Engineers" in his reports, referring both to the company and engineer officers who were military academy graduates. After the battle at Contreras, Scott said that if West Point gave the nation nothing other than the Corps of Engineers, the country could be proud.¹³

Being mostly native-born, the soldiers of the engineer company are themselves a story that is interesting and relevant. Enlisted men of Company A often supervised labor parties from infantry and artillery units, and, in this respect, are somewhat unique among the army's enlisted troops of the time.

Thus, the importance of the war, the notoriety of the officers, the distinctive role of the enlisted soldiers, Scott's accolades, and the lack of an estimate of the company's impact on the war all combine to give impetus to this study. Additionally, the occasion of the sesquicentennial of the Mexican War provides an ideal opportunity to tell the engineer company's story and to attempt to determine its contribution to the U.S. Army's mission in Mexico.

Background: Engineering Missions

Combat Engineers today divide their missions generally into five categories: *Mobility* (improving the conditions of the terrain to enhance friendly movement); *Counter-Mobility* (causing the enemy's movement to be impeded through the use of mines and other obstacles); *Survivability* (providing concealment and protection from the effects of enemy weapons); *Sustainment Engineering* (construction and repair activities that assist in sustaining operations); and *Topographic*

Engineering (providing information about the terrain).¹⁴ Although these classifications are a recent product, and technology has changed significantly, engineers have performed these basic missions in each of our nation's major wars, from the Revolution through Desert Storm.

One aspect of military engineering that has changed substantially since the Mexican War is that of constructing field fortifications (a survivability mission). From the bastioned forts of Vauban to Fort Sumpter to the Maginot Line, it is these types of constructions, and their close relationship with artillery, that military engineering came to represent in the eighteenth and nineteenth centuries. As warfare became more mobile in the twentieth century, these permanent works became less important, and were essentially replaced by tanks and hasty field fortifications. Since they played an important role in the Mexican War, a brief history of field fortifications will help in understanding the relationship between engineers and artillery.

Because of the sturdy nature of masonry fortifications, we have a fair trace of the history of military engineering efforts from about the last 7000 years. The earliest attempts to improve a location against the threat of man or nature were probably earthworks--made from un-reinforced soil. A major advancement in early fortifications was the masonry wall, which dates back at least to 5000 B.C. and the city of Troy.¹⁵ Numerous examples of ancient walls and forts exist to chart the progress of military construction; Hadrian's Wall at the northern frontier of the Roman Empire in England and the Great Wall of China are

but two examples. By A.D. 1100 the modern age of fortifications had begun in Western Europe.

Each technological advance in weaponry throughout the Middle Ages and Renaissance brought about some modification to the design of fortifications. The most significant modern weapon introduced in this time was the cannon, introduced in the fourteenth century. Although it took some time for artillery to have an impact on the design of fortifications, by the sixteenth century fortresses were complex affairs, and a strong tie between artillery and military engineering was established. As armies built newer cannons that could fire farther or newer rounds that were more lethal, military engineers developed newer fortifications to defeat the recent advancements. Weapons makers then went back to the drawing board to design new guns to defeat the improved structure. This see-saw process continues today.

In the middle of the seventeenth century the individual most associated with military fortifications, Sebastien le Prestre de Vauban, brought together centuries of different works into a coherent system. Vauban's contributions to the art of fortress design are equaled by his development of modern siege techniques. These techniques included the use of the sap and parallel,¹⁶ combined-arms assaults and both day and night operations. Military engineers studied Vauban's methods at West Point and abroad, and used these methods through the nineteenth century, in the same way that maneuver commanders studied and used Napoleonic techniques.¹⁷

Background: Engineers in the American Revolution

The defensive nature of the American Revolution convinced George Washington that he needed military engineers. He had to rely heavily on French officers for technical assistance as America lacked trained military engineers. Congress would later reject Washington's request for a military academy and peacetime engineering units, but he persuaded them to establish a Corps of Engineers with three engineer companies and a separate topographic company for the duration of the war.¹⁸

Although recruiting the three companies of "Sappers and Miners" took two years, the engineers made a significant contribution to the revolution. Engineer officers reconnoitered anticipated routes, battlefields and enemy positions. From these surveys and scouting missions the officers prepared helpful reports, drew detailed maps and made tactical recommendations to the line commanders. Army engineers erected fortifications, laid out encampments and cleared the way for the army on the march.¹⁹

The engineers' greatest moment of the war came in October 1781 at Yorktown, where the American Army conducted a classic Vauban-style siege of the city. The engineers performed reconnaissance, planned and executed field fortifications, erected gun platforms and transported guns and ammunition. American sappers led Lieutenant Colonel Alexander Hamilton's²⁰ forces in storming British Redoubt Ten. Using axes, the engineers chopped a path through the abatis (felled trees with sharpened branches surrounding the fort), enabling the infantry to quickly take the fort.²¹

After the war, Congress did not approve Washington's proposal to keep engineers on active duty to build and maintain fixed fortifications. By the end of 1783, the three companies of sappers and miners had mustered out of service, along with the rest of the Continental Army. The United States had no engineer troops from 1784 through May of 1794, when Congress authorized a regiment of artillerists and engineers. A second regiment joined the first in April 1798. The engineers and artillerists stayed together until March 1802, when Congress split them into two separate Corps and established the U.S. Military Academy at West Point.²²

Background: West Point

The Corps of Engineers enjoys a special relationship with the U.S. Military Academy. Congress established the academy as the nation's first engineering school in 1802. It was an important component of the Corps of Engineers until 1866, when its governance switched from the engineers to the army headquarters. Instruction at the academy included a solid foundation in military engineering. Over the years, the Chiefs of Engineers called for Congress to authorize a permanent engineer unit for training the West Point cadets.²³ It took the Mexican War to provide the stimulus to create such a unit. However, it was not until after the Mexican War that the company began to train cadets, the mission for which the army originally needed the engineers.

Background: Engineers in the War of 1812

Army engineers did not see combat between the Revolution and the War of 1812. In the years preceding the nation's second war, engineer officers spent most of their efforts in designing and constructing coastal fortifications. In April 1812, Congress authorized an engineer strength of twenty-two officers and one hundred thirteen enlisted men. When the war started in June, the Corps consisted of only seventeen officers and nineteen soldiers. They would not approach full strength until 1815.

In the War of 1812 engineers performed many of the same missions that they had in the Revolutionary War, primarily constructing fortifications, reconnaissance, mapping and route clearing. Fortifications were the engineer's primary effort throughout the war and many of the fortified harbors, such as at Fort Meigs and Fort McHenry, deterred British attack from the sea. The war produced a first for American engineer officers: they gained command responsibility over line units for the first time. For example, Captain Charles Gratiot²⁴ briefly commanded all forces in Michigan Territory. The engineer's performance in the war boosted the image of both the Corps of Engineers and the Military Academy at West Point.²⁵

After the War of 1812, the Corps of Engineers changed little until the War with Mexico in 1846. One exception is the Corps of Topographical Engineers whose development is intertwined with the Corps of Engineers. The topographic engineers became a separate corps in 1812, were mustered out in 1815, re-established under the Chief Engineer

in 1818, again made an independent corps in 1838, and finally reunited with the Corps of Engineers in 1863.²⁶

Shortly after the war, in 1817, Sylvanus Thayer²⁷ brought changes to the Military Academy that secured its permanent place in the army. Thayer followed the program of the *Ecole Polytechnique* that he observed on a visit to France. These changes, and the emphasis of Dennis Hart Mahan²⁸ on military engineering, set the environment in which most of the officers who fought the Mexican War would learn their initial military skills.²⁹

Literature Review

Most of my comments on sources accompany the entries in the annotated bibliography. Following are my characterization of the information available and my comments on some of the key works.

For a company-sized unit fighting almost 150 years ago, there is a fair amount of information available. I attribute this to three reasons. First, Civil War notables such as Lee, Beauregard and McClellan had their introduction to war in Mexico working in or with Company A. Historians researching these generals usually look back to the beginnings of their careers, a period that includes the Mexican War. Second, Scott drew constant attention to the engineers by speaking glowingly of them and frequently citing them in his reports. Finally, the Corps of Engineers began publishing papers and books toward the end of the 19th Century. These works came either unofficially from individual officers or through the impetus of the Engineer School. Some of the brightest (and most arrogant) mid-century West Point graduates became Corps of Engineer officers. Two of the four officers who were

assigned to the company during the war, Smith and McClellan, published accounts of the war--Smith as a unit history and McClellan as a diary. Beauregard often worked directly with the company and published his "reminiscences" as well.

The general character of the available references is that of historical account. That is, they detail events, places, dates and names, without question, analysis or conclusion. A number of the sources do describe personalities and relate interesting stories. These accounts help build an idea of what life and combat were like in the middle of the nineteenth century. Understanding the environment in which the company was operating will help eliminate the bias that a century and a half of hindsight and history brings.

Of the works listed in the bibliography, three primary sources provide much of the detailed information in this thesis. These are the lieutenants' stories: Beauregard's and McClellan's diaries and Smith's account of the company in the war. Although Smith did not publish until 50 years after the war and Beauregard filled his writings with complaints about not getting proper recognition, I found no reason to question their accuracy.

I chose two secondary sources to provide the framework in which the engineers operated. John S. D. Eisenhower's *So Far From God* is recent (1989), thorough (it covers events in California and New Mexico as well as the better known campaigns), readable, and well documented (31 pages of notes and bibliography). If Eisenhower's text missed something, I turned to K. Jack Bauer's *The Mexican War, 1846-1848*. This work is well known and usually reinforced or filled in for Eisenhower.

Other secondary sources listed in the bibliography were helpful at specific points, especially with engineer-related matters.

John C. Waugh's *The Class of 1846* was valuable for several reasons, although its focus is on members of the West Point Class of 1846 (McClellan, Thomas "Stonewall" Jackson, and others). This is the book that initially perked my interest in researching the origin of the company. It offers an overview of the Mexican War from Buena Vista to Mexico City. Waugh puts most of his effort into development of the officer's personalities and relationships, an aspect that helped in documenting Scott's and other general's attitudes about the engineers. Most helpful was Waugh's list of references; they are both lengthy and impressive (74 pages of endnotes and bibliography).

Three references provide most of the information about engineer operations prior to the Mexican War: Paul K. Walker's text on engineers in the American Revolution, *Engineers of Independence; The History of the U.S. Army Corps of Engineers*, published by the Engineer School; and the *Historical Sketch of the Corps of Engineers* by Chief Engineer Brigadier General A. A. Humphries. The latter two are also good sources for material on the development of engineer units over time.

Outside Eisenhower's narrative, or corollary works such as Waugh's, I see no current move to "reopen the Mexican War." Much of what is available now is due to modern interest in the American Civil War. As long as this interest stays strong, material about the engineer company in Mexico will continue to trickle forth.

Methodology

The form of this thesis is a combination of a unit history, historical narrative, and tactical analysis. Parts of each of these methods are necessary to answer the primary question: What did the engineer company contribute to the American forces in the Mexican War? The unit history aspect of this study gives the chronology of significant events during the company's organization and the war. The historical narrative provides the personality of the key players, the character of the engineer company, and the environment, both in time and place, in which the two sides fought. The elements of tactical analysis show what fire and maneuver advantages the American units gained as a result of the engineers' work. The organizing form is the historical narrative. Elements of unit history and tactical analysis are appropriately placed throughout the narrative.

Answers to a number of important subordinate questions will help form an answer to the primary question. These involve the organizing, raising and training of the company, the company's activities in the Mexican War, the types of missions assigned to the engineers, and the effects of those missions on the campaign.

Advance Outline

This introductory chapter presents the thesis statement and gives the background, literature review and methodology. I will present the origin of the company in Chapter 2, "Genesis of Company A." This chapter establishes the link between the engineer company and West Point and discusses the interesting demographics of the soldiers of the

company. Chapters 3, 4 and 5 form the narrative of the company's activities in the Mexican War.

Chapter 3, "The Northern Campaign," takes the engineers from their birthplace at West Point through northern Mexico to Tampico. The company arrived before Scott, but after Taylor's early battles. The engineers spent this early (for them) part of the war building a reputation, earning the trust and confidence of the line officers, and working miles and miles of broken Mexican roads.

I will present the assault landing and subsequent siege at Vera Cruz in Chapter 4, "The Siege of Vera Cruz." It was here, in their first battle, that the engineer company demonstrated the versatility and competence that would be their hallmark for the remainder of the war. Company A earned its first campaign honors, a silver campaign band for its guidon, at Vera Cruz.

Chapter 5, "To the Halls of Montezuma," completes the war with General Scott's march to and capture of Mexico City. The series of engagements, from Cerro Gordo through Garita de San Cosme, often found the engineers reconnoitering, repairing roads, building batteries and finally dropping their shovels and fighting alongside the infantry. The company earned five additional silver campaign bands for these battles. I will offer conclusions and recommendations for further research in Chapter 6.

Endnotes

¹Zachary Taylor began his military career in the 7th Infantry in May 1808. He was promoted to captain in November 1810 and earned a brevet promotion to major for gallantry in the War of 1812. The permanent promotion to major came in the 26th Infantry in May 1815. After a short break in service, he was promoted to lieutenant colonel in April 1820. He served with the 4th, 8th, 1st, 7th and 6th Infantry before earning colonel in April 1832. He was promoted to brigadier general in December 1837 for gallantry in the Seminole Indian War and to major general in May 1846 for gallantry and distinguished service in successive victories at Palo Alto and Resaca de la Palma in the Mexican War. He received congressional recognition and was presented a gold medal for further victories at Monterey and Buena Vista. He was elected and served as President of the United States from March 1849 until his death in July 1850. Francis B. Heitman, *Historical Register and Dictionary of the United States Army*, (Washington D.C.: Government Printing Office, 1903), 949.

²Seth Barton Thornton became a second lieutenant in the 2nd Dragoons on 8 June 1836. Before the War with Mexico, he was promoted to first lieutenant in November 1837 and to captain in February 1841. His capture on 24 April 1846 was the first direct action of the Mexican War. The Mexicans later released him, and he returned to action with the dragoons. He was killed on 18 August 1847, two days before the Battles of Contreras and Churubusco, by Mexican cannon fire near the village of San Antonio, Mexico. Heitman, 959; and John S.D. Eisenhower, *So far from God, The U.S. War with Mexico, 1846-1848*, (New York: Random House, 1989), 316.

³Eisenhower, 65.

⁴K. Jack Bauer, *The Mexican War, 1846-1848* (Lincoln, Nebraska: University of Nebraska Press, 1974), xxv.

⁵Raphael P. Thian, *Legislative History of the General Staff of the Army of the United States (its Organization, Duties, Pay, and Allowances)*, from 1775 to 1901. (Washington D.C.: Government Printing Office, 1901), 503.

⁶Winfield Scott began his illustrious military career as a captain in the light artillery in May 1808. By the end of the War of 1812, he had earned the rank of brigadier general and was further breveted to major general for distinguished service and gallantry at the battles of Chippewa and Niagara. He earned a further brevet, to lieutenant general, on the day his army defeated the Mexican forces at Vera Cruz, in March 1847. In addition to his field commands, Scott served as the Commander in Chief of the Army from July 1841 until his retirement in November 1861. Scott died in May 1866. Heitman, 870.

⁷G. A. Youngberg, *History of Engineer Troops in the United States Army 1775-1901*. (Washington Barracks, Washington D.C.: Engineer School Press, 1905), 5.

⁸Robert Edward Lee graduated second in his West Point Class of 1829 and was commissioned as a second lieutenant in the Corps of Engineers. He entered the Mexican War as a captain, but was three times

breveted for gallantry and meritorious action. He earned the brevet to major at Cerro Gordo, to lieutenant colonel at Contreras and Churubusco, and to colonel at Chapultapec. He resigned from the U.S. Army in 1861 and served as the General-in-Chief of the Confederate Army from that time until the war's end in 1865. Lee died in October 1870. Heitman, 625.

Gustavus Woodson Smith was the number eight graduate in his West Point Class of 1842. Initially a brevet second lieutenant, he was promoted to second lieutenant in January 1845. In the Mexican War Smith served as commander of Company A, Corps of Engineers, and earned two brevets for gallantry: to first lieutenant at the Battle of Cerro Gordo in August 1847; and to captain at the Battle of Contreras in August 1847. Smith resigned from the army as a first lieutenant in December 1854. In the Civil War he served as a major general in the Confederate States Army. Smith died in June 1896, the same year in which he wrote the engineer company's Mexican War story. Heitman, 898.

Pierre Gustavus Toutant Beauregard graduated second in his West Point Class of 1838 and was initially commissioned as an artilleryman. Six days later he joined the Corps of Engineers, the branch he stayed with through the Mexican War. He was twice breveted for gallantry and meritorious conduct, to captain at Contreras and Churubusco and to major at Chapultapec. He resigned from the U.S. Army in February 1861 to join the Confederate Army, where he served in the Civil War at the rank of General. Beauregard died in February 1893. Heitman, 204.

George Brinton McClellan graduated second in the West Point Class of 1846 where he was a classmate of Thomas "Stonewall" Jackson and John Gray Foster. He began his military career as an engineer with Company A upon his graduation, served with them throughout the Mexican War and later commanded the new company. During the Mexican War he was twice breveted for gallantry and meritorious conduct: to first lieutenant at the Battles of Contreras and Churubusco; and to captain at the Battle of Chapultapec. After the Mexican War, he was promoted to first lieutenant in July 1853 and to captain March 1855, at which time he became a cavalry officer in the 1st Cavalry. McClellan resigned from the army in January 1857. He reentered the service for the Civil War as a major general in the Ohio Volunteers in April 1861. The following month he joined the regular army at that rank. McClellan served as Commander in Chief of the Army from November 1861 to March 1862. McClellan died in October 1885. Heitman, 656.

⁹John C. Waugh, *The Class of 1846--From West Point to Appomattox: Stonewall Jackson, George McClellan and their Brothers*, (New York: Warner Books, 1994), 75.

¹⁰Waugh, 128.

¹¹The United States had three major wars prior to the Mexican War: the country won its Revolutionary War by outlasting the British; the War of 1812 is commonly thought of as a draw; and the treaty that ended the Seminole Indian War was not signed until 1845. J. Patrick Hughes, interview by author, 7 February 1995, Combined Arms Center History Office, Fort Leavenworth, Kansas.

¹²Gustavus W. Smith was one of McClellan's best friends and McClellan referred to him with the nickname "Legs." Smith and McClellan later faced each other on opposite sides in the American Civil War at the battles of Seven Pines and Fair Oaks. George B. McClellan, *The Mexican War Diary of George B. McClellan*, Edited by William S. Meyers (Princeton: Princeton University Press, 1917), 7.

¹³Waugh, 128.

¹⁴U.S. Army, *FM 5-100, Engineer Combat Operations* (Washington, D.C.: Department of the Army, 1988), 9-10.

¹⁵Remains of the ancient city of Troy reveal towers, gatehouses and city walls 20 feet in height. Ian V. Hogg, *Fortress: A History of Military Defense* (New York: St. Martin's Press, 1977), 13.

¹⁶A parallel is a trench cut parallel to the fortress wall under siege. A sap is zigzag trench cut at angles to the walls to join parallels. This is the origin of the term 'sapper' to identify the soldier who has the hazardous duty of cutting the saps. Hogg, 52.

¹⁷The history of fortifications and the emergence of Vauban is from Hogg, 8-52.

¹⁸The story of engineers in the Revolutionary War is taken primarily from three sources: Paul K. Walker, *Engineers of Independence*, (Washington D.C.: U.S. Government Printing Office, 1981), iii-v and 319-322; A. A. Humphries, "Historical Sketch of the Corps of Engineers," In *Historical Papers relating to the Corps of Engineers and to Engineer Troops of the United States Army: Occasional Papers Number 16*, 1-54, (Washington Barracks, D.C.: Press of the Engineer School, 1904) 1-5; and U.S. Army Corps of Engineers, *Engineer Pamphlet EP360-1-21, The History of the U.S. Army Corps of Engineers*, (1986), 17-19.

¹⁹Walker, iii.

²⁰Alexander Hamilton was born in the West Indies and was a New York resident during the time of the American Revolution. He started his military career as an artillery captain in the New York Provisional Artillery Company in March 1776. In March 1777 he was promoted to lieutenant colonel and became General Washington's principal Aide de Camp. Hamilton earned a brevet promotion, to colonel, in September 1783. He was promoted to major general in July 1798 and served as the army's Inspector General until he was honorably discharged in June 1800. Hamilton died in July 1804, after Aaron Burr mortally wounded him in a duel. Heitman, 492.

²¹Walker, 319-20.

²²Humphries, 1-13.

²³Smith, 7; and *History of the U.S. Army Corps of Engineers*, 27.

²⁴President Thomas Jefferson appointed Charles Gratiot as a cadet to West Point from the Missouri Territory in 1804. After

graduating in the Class of 1806 and assisting with the fortifications at Charleston, NC, he was post commander at West Point from 1810-11. In the War of 1812 he served as General William H. Harrison's Chief Engineer. He later served as Chief Engineer of the Northwest Territory and Superintending Engineer for the Hampton Roads defense construction. On 24 May 1828, he was breveted to brigadier general and became the army's Chief Engineer. His career ended on a less positive note, however. Due to his overly strict interpretation of the accounting laws, President Martin Van Buren dismissed Gratiot from the Army in 1838. He then worked as a clerk in the General Land Office before his death in 1855. *History of the U.S. Army Corps of Engineers*, 117.

²⁵*History of the U.S. Army Corps of Engineers*, 23.

²⁶Archie P. McDonald, "West Point and the Engineers," *The Military Engineer* 377 (May-June, 1965): 188; and *History of the U.S. Army Corps of Engineers*, 3-6.

²⁷Sylvanus Thayer was graduated from West Point third in the Class of 1808. He earned promotions to second lieutenant in February 1808; to first lieutenant in July 1812; to captain of ordnance in September 1812 to captain of engineers in October 1813; to major in May 1828; to lieutenant colonel in July 1838; and to colonel in March 1863. Through his career he earned four brevets for service. He superintended the U.S. Military Academy at West Point from 1817 to 1833. Heitman, 952, and McDonald, 187-88.

²⁸Dennis Hart Mahan was first in his West Point Class of 1824. He earned his only promotion, to second lieutenant, on 1 July 1824. He was assigned to the Military Academy as an assistant professor of engineering. He took a leave of service in 1826 due to poor health. During this leave he studied at the Military School of Engineers and Artillerists at Metz, France. When his health improved in 1830, he returned to West Point and taught engineering until he resigned in 1832 so that he could become the academy's Professor of Engineering. He served in that capacity until his death, from a drowning accident, in 1871. Heitman, 684, and McDonald, 188.

²⁹*History of the U.S. Army Corps of Engineers*, 25-28.

CHAPTER 2

GENESIS OF COMPANY A

Company A, Corps of Engineers, was not the nation's first engineer unit, but it was the first engineer unit to remain in permanent service after a conflict. The sappers of Company A were also unique within the army of 1846: they were the only engineers in the army and would remain so until the American Civil War, their missions and equipment were different from any other unit's, and they were almost exclusively native-born at a time when unskilled immigrants filled the ranks of much of the regular army. The company also enjoyed a special relationship with the U.S. Military Academy--West Point was the engineers' home until 1861, when it moved to Washington D.C.

Ties to West Point

A congressional act of 16 March 1802 established the United States Military Academy at West Point. That act also authorized the President to establish a Corps of Engineers, consisting of officers and cadets, at the academy to provide instruction.¹ The senior engineer officer was the superintendent of the academy, and, until 1866, his successors came from the Corps of Engineers. The academy formally opened on 4 July 1802, with instruction initially limited to artillerists and engineers.²

The academy was the nation's first engineering school. Under the superintendence of Sylvanus Thayer from 1817 to 1833, and under the professorship of Dennis Hart Mahan from 1824 to 1871, West Point earned a solid reputation as a school of civil engineering. By 1846, Mahan's classes in military engineering taught to first-classmen (seniors) had become the most difficult and most feared of the academy's courses. Mahan instructed the cadets in fortifications, bridge building and siegecraft. Here he brought together the cadets' previous studies in mathematics, science, drawing and French into the doctrine of military engineering and tactics.³

Mahan's teachings in the classroom required practice in the field. Before Company A, field training was difficult because the academy had only engineer officers to instruct the cadets in the application of engineering principles. To assist with this instruction, the Chiefs of Engineers repeatedly petitioned Congress for a company of enlisted engineer soldiers. Until 1846, these requests went unfulfilled.

Company A's First Commander

Expecting that Congress would eventually allow an engineer company, Lieutenant Colonel Joseph G. Totten,⁴ the Chief of Engineers from December 1838 through the beginning of the Civil War, persuaded Congress to allow the Corps to prepare an engineer captain for the job of commanding the company. Totten selected a promising young officer, Captain Alexander J. Swift,⁵ to groom for this assignment. Swift was the top graduate in his West Point Class of 1820 and a brilliant engineer. To further prepare him for the job of teaching military

engineering to cadets, Totten sent Swift to Metz, France, to study at the French school for engineer officers. At Metz, Swift learned the latest and most advanced engineering practices. Upon his return from France, and until Congress passed the legislation authorizing the engineer company, Swift saw temporary duty at West Point, as an instructor.⁶

The conflict with Mexico gave Congress the impetus it needed to act on the standing request from the engineer chief for an engineering unit. On 15 May 1846 Congress authorized a company of sappers, miners, and pontoniers to be formed at West Point. The text of this legislation, in Figure 1, states the company's purpose of aiding in the practical instruction in engineering matters. On 19 May 1846 Totten officially gave Swift command of the company.

High Standards

With the congressional authorization only four days old, Swift's command was a paper tiger. The engineer company initially had neither soldiers nor equipment for Swift to command. His immediate tasks were clear: he must recruit soldiers and gather equipment. Recruiting proved more difficult for the engineers than for a typical infantry or artillery regiment--Totten set high standards for engineer recruits. His 19 May 1846 letter to Swift explains:⁷

As, however, the duties of these Engineer troops will be of a peculiar character, we should be particular in their selection; and as their wages will be high, we ought to be able to command the best material. In addition, therefore, to the requirements of the ordinary soldier, I would subjoin the following, for the Engineer soldiers.

We must have smart, active, able-bodied young men--the minimum height, except for musicians, will be 5 feet 6 inches, instead of 5 feet 5 inches, and the minimum should always be accompanied by extraordinary qualifications in other respects. A medium height say from 5'8" to 5'10" would be preferred.

Particular attention should be paid to the mental capacity and general intelligence of the recruit.

Every recruit must be able to read & write. Every recruit must have learned some mechanical trade. Those trades having a connection with Engineer operations, in time either of peace or war, would be preferred.

No married man will be enlisted, unless recommended by extraordinary qualifications for the peculiar service of these troops, and not even then without first submitting the matter to this office for approval.

No naturalized citizens will be enlisted for this service unless recommended by quite extraordinary qualifications.

Totten mentioned that the engineers' wages would be high and, in deed, they were. At two grades, first sergeant and sergeant, the sappers' pay would more than double that of their fellow soldiers of the line, as shown in Figure 2.

The qualifying standards for the company were high and, even with the incentive of higher pay, Swift found only seventy-two⁸ soldiers to fill his one-hundred authorized positions before the company sailed to Mexico. Engineer officers meticulously applied the standards to prospective recruits, as shown in recruiting advertisements written by Lieutenant Isaac I. Stevens⁹ and placed in a Maine newspaper, Figures 3 and 4.

In the second advertisement, Stevens lists the first qualification as "American birth." To help them find eligible young men, the officers avoided areas that had heavy immigrant populations. Swift enlisted twenty-nine soldiers, primarily at West Point and Philadelphia, including two immigrants from Germany. Stevens recruited

sixteen troops exclusively from Maine, and in particular from Portland. Lieutenant Danville Leadbetter¹⁰ found fifteen new sappers, primarily from New York. Three of Leadbetter's recruits were foreign-born: one from Germany and two from Ireland. Captain George W. Cullum¹¹ worked out of Boston and signed up eleven soldiers from several New England states. These four officers accounted for all but two of the company's enlistments. Of the seventy-two newly recruited sappers, all but five were native-born. By the end of 1846, due to one death and two desertions, the number of immigrants dropped to two. In comparison, other army units recruited in 1846 had an average of more than 50 percent soldiers of foreign birth.¹²

The issue of a recruit's origin was more pragmatic than prejudicial. Men who were born in the United States, as a group, were more likely to be able to read and write, communicate effectively, and possess skills required of the engineers. Immigrants generally did not have hard skills and often had trouble speaking English, let alone reading and writing. Because enlisted engineer soldiers would be required to supervise soldiers of other branches of service, they had to be both effective communicators and technically proficient engineers.

There were some political problems with foreigners constituting such a large portion of the army, the situation that existed before the war and until 1847. Immigrants seemed to have an easier time adjusting to the rigid structure of army life, while, to the native-born, the imposed hierarchy of the military appeared un-American. Only a stirring emotional event would draw the natives to arms. In this case, the emotional event was the Mexican War. In early 1847 Congress established

conditions under which many native-born men found it easy to sign up--a one-year enlistment. While the short terms of these enlistments would later haunt the army, they did produce a flood of native-born volunteers.¹³

There are distinctions, however, between the native-born of the engineer company and the native-born enlistments in 1847. Primarily, the sappers in Company A were regular. The one-year enlistments of 1847 were volunteers. Training, discipline and methods of selecting officers differed between the regulars and the volunteers. The engineer recruits joined an exclusive organization whose standards for membership were high. The volunteers joined units primarily because of state residence.

All but four of the engineer company's new soldiers were raw recruits. Each of those four had served one or more regular army terms of enlistment. Swift promptly made three of them sergeants, and the fourth, Frederick H. Gerber,¹⁴ became the company bugler.¹⁵

Two Future Generals

Swift did not limit his attention to recruiting enlisted soldiers; he also needed lieutenants. While he was at West Point waiting for Congress to give him a company to command, Swift was in an ideal position to observe both instructors and cadets as potential company officers. He found the engineer he wanted as his first lieutenant in a brilliant assistant professor of civil and military engineering, Gustavus W. Smith. Smith, in turn, found the company's second lieutenant, George B. McClellan. McClellan was Smith's good friend and had been one of his brighter students--he graduated second in the Class of 1846. Smith claimed that the three officers worked

together well: "The understanding between them was complete. There were no jars--no doubts or cross purposes--and no conflict of opinion or action."¹⁶ By the end of July 1846, the new company's officer compliment was complete with three of the best young engineers in the army.

Infantry Drill and School of the Sapper

Swift was the company's unchallenged expert in military engineering matters and was eager to train the new sappers. But these men were almost all fresh recruits, talented at carpentry, printing and smithing, not soldiering. The army had adopted new drill regulations since Swift's cadet days, and he was not ready to train the recruits in these non-engineering matters. Smith and the recently graduated McClellan knew these movements well, however, and became the company's instructors in infantry drill. Swift then balanced his time between training the company in engineering matters, recruiting and obtaining equipment for the company.¹⁷

With the infantry drill, engineer drill, and routine garrison chores, the soldiers of Company A stayed busy. McClellan apologized to his mother for not writing more often and gave her a typical day's schedule as evidence. The soldiers drilled before breakfast and did company and squad drill after breakfast. After lunch, there were barracks maintenance and other company duties to attend to. Engineer drill began at mid-afternoon, followed by parade and dinner. After dinner, the officers repaired to Captain Swift's quarters where the commander and his lieutenants read "Sapping and Mining" until Tattoo.¹⁸

As Swift prepared the company for combat, Totten thought ahead to keeping an engineer presence at West Point, both to instruct the cadets and to train new engineer recruits. On 3 September 1846 Totten sent Captain Frederick A. Smith¹⁹ to West Point to take over Swift's instructor duties, to oversee construction projects at the academy and to receive and drill engineer troops after the company departed for Mexico. On 1 March 1848, Captain George W. Cullum, the officer that had recruited eleven of the company's members two years earlier, replaced Frederick Smith. Cullum would greet the sappers upon its return to West Point and later command the company.²⁰

Billhooks and Sap-forks

While Smith and McClellan supervised the drilling of the new troops, Swift collected equipment. Although less information is available today about the company's equipment than about the soldiers, the engineers probably had the necessary tools to do sapping, mining and pontoniering, as their name implies. They did deploy to Mexico with a substantial number of common pioneer tools, as they could equip a work detail of up to about two-hundred soldiers. Besides picks and shovels, these implements included hatchets, axes, billhooks and sap-forks.²¹ McClellan reported issuing one hundred and forty picks and mattocks to a labor force before the siege of Vera Cruz.²² Smith mentioned that one of the equipment sets that Swift procured while at West Point was an India Rubber Pontoon Bridge. The company took the pontoon set to Mexico, although there is no record of its use during the war.²³

Swift did not have a standard table of equipment to work from as army units have today. Thus, we cannot determine whether the sappers

were well outfitted by examining the completeness of their equipment. The officers did not cite equipment shortages as a problem--they worked with what they had, and that seemed to be enough to get the job done.

The company was probably not as well equipped with carpenter's tools as it was with pioneer tools. Twelve of the recruits listed "carpenter" as their occupation on their enlistment paperwork, and many others certainly possessed similar skills. The talent was there, but there are no examples of construction given, excepting roads, bridges and fortifications. Either the engineers did not build barracks, latrines and other buildings, or Smith, McClellan and others did not see them as important enough to write about. Keeping to combat missions, such as reconnaissance, road repair and bridge building, also follows what had been traditional engineer missions up until that time.

Ready for War

By mid-September 1846, Swift had assembled seventy-two enlisted troops, two lieutenants, and the necessary equipment for the expedition to Mexico. With the exception of one officer and two enlisted transfers, the company received no new troops before returning to West Point in 1848. Reflecting on the war in October 1847, Smith claimed that when he "could furnish ten men, fifty, at least, were needed." Both Smith and Totten tried to procure more men, but were unsuccessful. Frederick Smith, the officer left at the academy to continue recruiting and training sappers, found only six more recruits by the war's end, and these six remained at West Point. On 12 September 1846, with the company at just over 70 percent strength, Swift received orders to move the company to New York City and sail to Mexico.

That there be added to the Corps of Engineers one company of sappers, miners, and pontoniers, to be called engineer soldiers; which company shall be composed of ten sergeants, or master-workmen, ten corporals, or overseers, two musicians, thirty-nine privates of the first class, or artificers, and thirty-nine privates of the second class, or laborers; in all, one hundred men.

SEC. 2. That the pay and rations of the sergeants, or master-workmen, of said company shall be the same as those now allowed by law to the master-workmen employed by the ordnance department, excepting that the engineer sergeants shall receive one ration only per day instead of one ration and a half, of the corporals, or overseers, the same as those now allowed by law to the armorers, carriage-makers, and blacksmiths employed by the ordnance department, excepting that the engineer corporals shall receive one ration only per day, instead of one ration and a half, of the privates of the first class, or artificers, the same as those now allowed by law to the artificers employed by the ordnance department; of the privates of the second class, or laborers, the same as those now allowed by law to the laborers employed by the ordnance department, and of the musicians the same as those allowed by law to the musicians of the line of the Army; the said non-commissioned officers, privates, and musicians being respectively, entitled to the same clothing and other allowances as are granted by law to non-commissioned officers, privates, and musicians of the artillery of the Army of the United States.

SEC. 3. That the said engineer company shall be subject to the rules and articles of war, shall be recruited in the same manner and with the same limitation, and shall be entitled to the same provisions, allowances, and benefits in every respect, as allowed to the troops constituting the present military peace establishment.

SEC. 4. That the said engineer company shall be attached to and compose a part of the Corps of Engineers, and be officered by officers of that corps, as at present organized; they shall be instructed in and perform all the duties of sappers, miners, and pontoniers, and shall aid in giving practical instructions in these branches at the Military Academy; they shall, moreover, under the orders of the Chief Engineer, be liable to serve by detachments, in overseeing and aiding laborers upon fortifications or other works under the Engineer Department, and in supervising finished fortifications as fortkeepers, preventing injury and applying repairs.

SEC. 5. That the Chief Engineer, with the approbation of the Secretary of War, be authorized to regulate and determine the number, quality, form, dimensions, etc., of the necessary vehicles, pontoons, tools, implements, arms, and other supplies for the use and service of said company as a body of sappers, miners and pontoniers.

Figure 1. Text of the Congressional Act Authorizing the Company of Sappers, Miners, and Pontoniers, 15 May 1846. Quoted in A. A. Humphreys, "Historical Sketch of the Corps of Engineers," *Occasional Papers Number 16*, (Washington Barracks, D.C.: Press of the Engineer School, 1904), 25.

| Grade | Pay per month of Artillery and Infantry soldiers, and of dragoons and riflemen, when serving on foot. | Pay per month of dragoons and riflemen, when mounted. | Pay per month of engineer soldiers in the company of Sappers, Miners and Pontoniers. |
|-----------------------------|---|--|---|
| Sergeant Major | \$ 17 | \$ 17 | -- |
| First Sergeant | \$ 16 | \$ 16 | \$ 40 |
| Ordinance Sergeant | 18 | -- | -- |
| All other Sergeants | 13 | 13 | 30 |
| Corporals | 9 | 10 | 16 |
| Buglers | 8 | 9 | -- |
| Musicians | 8 | -- | ? |
| Ferriers and Blacksmiths | 11 | 11 | -- |
| Artificers | 11 | -- | ? |
| Privates (1st Cl) | -- | -- | 13 |
| Privates (2d Cl) | 7 | 3 | 9 |

Figure 2. Established Rates of Pay in the U.S. Army, 1846-1847. Pay scales for artillery, infantry and dragoon soldiers are from a recruiting advertisement in the *Bangor Whig and Courier* (Bangor, Maine), January 1847. Pay scales for engineer soldiers are from recruiting advertisements in the *Bangor Whig and Courier* (Bangor, Maine), June-July 1846 and December 1846.

One Hundred Engineer Recruits WANTED.

THE subscriber will enlist at Fort McClary, Portsmouth Harbor, N.H., at Fort Preble, Portland Harbor, Me. and at Bucksport, Me. one hundred engineer recruits. They will enter the service as privates, with a pay of \$18 per month. When found qualified they will be advanced to higher grades with advanced pay, even as high as \$40 per month. Their duties will ultimately be of the most honorable and responsible character.-- An unrivalled opportunity here presents itself to young men of energy, enterprize and resources to carve out for themselves an honorable career. All who for ultimate results, are willing to subject themselves to a long and arduous, physical and mental training, will find here an unequalled field.

I invite the rising and patriotic spirits of the country, the intelligent mechanic skilled in his trade and having an aptitude for science, the hardy pioneers and boatmen of our rivers, the men of eagle eye and of iron nerves, of intelligence and resources, to present themselves. They will enter a service, in which the career will be emphatically open to merit, and in which they may hope to win the highest professional distinction.

Let none apply except such as can bring the highest testimonials as to character, have sound-constitutions, are five feet six inches high, are unmarried and of American birth.

The subscriber will take great pleasure in communicating any information that may be desired.

ISAAC I. STEVENS.

june 12. d&wtf Lieut. U.S. Engineers.

Figure 3. Recruiting advertisement from the *Bangor Whig and Courier*, (Bangor, Maine), June-July 1846 (facsimile). A later advertisement, from December 1846 and shown in Figure 3, cites the private's pay at \$13 and \$9 per month for privates of the first class and of the second class, respectively.

Sappers, Miners, and Pontoniers.

THE undersigned invites enlistments in the Company of Sappers, Miners, and Pontoniers. The company, when full, consists of one hundred men--10 sergeants, pay 30 dollars per month and their allowances; 10 corporals, pay 16 dollars per month and their allowances; 39 privates of the first class, pay 13 dollars per month and their allowances; 39 privates of the second class, pay 9 dollars per month and their allowances, and 2 musicians. The allowances consist of the food, clothing, fuel, medical attendance, &c., necessary to a liberal support.

The qualifications are-- American birth, age 18 to 35 years, an height of 5 feet, 6 inches, good moral character, a sound constitution, and an aptitude for labor. Mechanics, farmers and river men, are particularly wanted. The most intelligent men of the company will ultimately be employed in responsible positions on the Fortifications, and will find a good opportunity to get a knowledge of practical engineering.

The undersigned invites letters of inquiry.-- Prompt answers will be made, and a printed circular enclosed. He will visit some of the principal towns of Maine and New Hampshire in December and January, and will designate in his answers to letters of inquiry, some convenient time and place of meeting for men desirous of a personal interview.

The undersigned will enlist at Bucksport, Tuesday, Wednesday, Thursday and Friday of the present week--Bangor House, Bangor, Saturday, Dec. 12th--Mansion House, Augusta, Tuesday, Dec. 15--United States Hotel, Portland, Monday, Dec. 21--principal hotel, Skowhegan, Wednesday, Dec. 23d. All letters must be addressed to the undersigned, at Bucksport, Me.

ISAAC I. STEVENS.

Lieut. U.S. Engineers.

Bucksport, Me., Dec. 7, 1846. [3tawd&wtf d9
[Democrat please copy.]

Figure 4. Recruiting advertisement from the *Bangor Whig and Courier* (Bangor, Maine), December 1846 (facsimile). This advertisement was printed after the company deployed to Mexico. If this advertisement generated any enlistments, those recruits did not see action in the war, but instead remained at West Point.

Endnotes

¹Raphael P. Thian, *Legislative History of the General Staff of the Army of the United States (its Organization, Duties, Pay, and Allowances), from 1775 to 1901* (Washington D.C.: Government Printing Office, 1901), 497.

²Archie P. McDonald, "West Point and the Engineers," *The Military Engineer* 377 (May-June, 1965): 187.

³US Army Corps of Engineers Historical Division and Public Affairs Office, *The History of the US Army Corps of Engineers*, (1986), 25-27; and John C. Waugh, *The Class of 1846 -- From West Point to Appomattox: Stonewall Jackson, George McClellan and their Brothers*, (New York: Warner Books, 1994), 62-63.

⁴Joseph G. Totten graduated third in the West Point Class of 1805 and he was commissioned into the Corps of Engineers. He resigned a year later to help his uncle, Jared Mansfield, survey the Northwest Territory. He re-entered service in February 1808 and helped build New York Harbor defenses until 1812, when, at age 24, he became the Chief Engineer for the Armies of Niagara and Champlain. In June of 1813 Totten was breveted to major for meritorious service. After the Battle of Plattsburgh, he was breveted to lieutenant colonel for bravery. After the War of 1812, Totten became a member of the first permanent Board of Engineers and planned the coastal defense construction, a plan that was followed for the next one hundred years. He became the Chief Engineer of the U.S. Army in 1838, a position he held for twenty-six years, until his death in 1864. At the siege of Vera Cruz in the Mexican War, Totten was breveted to brigadier general for gallantry and meritorious conduct. Totten later became a Regent of the Smithsonian Institution and was co-founder of the National Academy of Sciences. *History of the Corps of Engineers*, 117; and Francis B. Heitman, *Historical Register and Dictionary of the United States Army*, (Washington D.C.: Government Printing Office, 1903), 966.

⁵Alexander Joseph Swift was born in North Carolina and was a New York resident when he entered the Military Academy at West Point in July 1826. He was the top graduate in the Class of 1830 and immediately became a second lieutenant in the Corps of Engineers. He earned first lieutenant in October 1836 and captain in July 1838. Swift became the first commander of the newly organized Company A in May 1846. He oversaw the raising, equipping, training and deployment to Mexico of the company. Swift fell ill while the company was in Northern Mexico and had to be evacuated to the United States after the landing at Vera Cruz. Sadly, Swift died a month later, in April 1847, on his arrival at New Orleans. Heitman, 940.

⁶Gustavus W. Smith, *Company "A" Corps of Engineers, U.S.A., 1846-1848, in the Mexican War*, (Willets Point, New York: The Battalion Press, 1896), 7; and Waugh, 75.

⁷Joseph G. Totten, Washington, to Alexander J. Swift, West Point, 19 May 1846, extract in George B. McClellan, "The Papers of

George B. McClellan." (Washington, D.C.: Library of Congress Manuscript Division, 1977, Microfilm), A-1, 59.

⁸Steinhauer reports that seventy-two recruits joined the company at West Point and one more joined them in Texas. Smith and McClellan each claim seventy-one "rank and file" soldiers were on the ship. This may not be a discrepancy as Steinhauer also reports one discharge before the company deployed. There is also the question of whether or not the company cook (the "short, fat, dumpy, Long Island Dutchman") is counted in the "rank and file." Dale R. Steinhauer, "Corps of Engineers, A Company--31 August 1846," Unpublished notes, 5-7; Smith, 9; and George B. McClellan, *The Mexican War Diary of George B. McClellan*, ed. William S. Meyers (Princeton: Princeton University Press, 1917), 7.

⁹Isaac Ingalls Stevens was the top graduate in his West Point Class of 1839 and was commissioned a second lieutenant in the Corps of Engineers. In the Mexican War he served on Scott's staff as the engineer adjutant. He was twice breveted, to captain after Contreras and Churubusco and to major after Chapultapec. He resigned from the army in 1853. He re-entered the army as the colonel of the 79th New York Infantry in July 1861. He earned two promotions in the volunteers, to brigadier general in September 1861 and to major general in July 1862. He was killed on 1 September 1862 at the Battle of Chantilly, Virginia. Heitman, 923.

¹⁰Danville Leadbetter graduated third in his West Point Class of 1836 and was initially commissioned as an artillery officer. He transferred to the Corps of Engineers in November of that year as a brevet second lieutenant. A month later, he transferred back to the 1st Artillery Regiment. He served as an artilleryman for seven months before transferring, yet again, to the engineers, in July 1837. He stayed with the engineers this time and was promoted a year later to first lieutenant. He earned captain in October 1852 and resigned in December 1857. During the American Civil War Leadbetter served as a brigadier general in the Confederate Army from 1861 to 1865. Leadbetter died in September 1866. Heitman, 621.

¹¹George Washington Cullum graduated third in his West Point Class of 1833 and joined the Corps of Engineers. He earned promotions to second lieutenant (April 1836), captain (July 1838), major (August 1861), lieutenant colonel (March 1863), and colonel (March 1867). Cullum served as aide-de-camp to brevet Lieutenant General Scott from April through August 1861. In addition to his regular army status, Cullum served as brigadier general of volunteers from November 1861 through September 1866. For faithful and meritorious service during the war he was breveted to colonel, brigadier general and major general in March 1865. He retired nine years later, in January 1874. Cullum died in February 1892. Heitman, 343.

¹²Dale R. Steinhauer, "Sogers: Enlisted Men in the U.S. Army, 1815-1860," (Ph.D. Dissertation, University of North Carolina at Chapel Hill, 1992): 106-107; and Steinhauer, "Corps of Engineers, A Company--31 August 1846," 1-4.

¹³Steinhauer, "Sogers," 106-107.

¹⁴Frederick Gerber was one of the few to stay with the company after the war. On 20 March 1857 he became the company first sergeant and served in that position until 21 February 1867. When the company grew to battalion size during the Civil War, he became the acting sergeant major. He served as acting sergeant major from December 1861 until September 1862. Gerber was promoted to sergeant major and served as the battalion sergeant major from 21 February 1867 until his death on 10 November 1875. Gerber was awarded the Medal of Honor for his years of meritorious service. G. A. Youngberg, *History of Engineer Troops in the United States Army 1775-1901*, (Washington Barracks, Washington D.C.: Engineer School Press, 1905), 42, 60.

¹⁵Smith, 10.

¹⁶Smith, 8.

¹⁷Waugh, 75-76.

¹⁸George B. McClellan, West Point, to his mother, 23 August 1846. McClellan papers, A-1, 76.

¹⁹Frederic Augustus Smith was the top graduate in the West Point Class of 1833. He entered the Corps of Engineers, where he was promoted to second lieutenant (January 1835) and captain (July 1838). Smith was assigned to Company A from 31 June 1847 through 1 March 1848, although he remained at West Point during that time. Smith died in October 1852. Youngberg, 76; and Heitman, 897.

²⁰Joseph G. Totten, Washington, to Frederick A. Smith, Washington, 3 September 1846; and Extract from Engineer Orders No. 1 dated 1 March 1848. Both are from the McClellan papers, A-1, 82.

²¹McClellan, 80.

²²McClellan, 63.

²³McClellan mentions unloading the pontoon set at Vera Cruz. McClellan, 73

CHAPTER 3

COMPANY A IN NORTHERN MEXICO

The Mexican War operations of Company A, Corps of Engineers, occurred in three phases: operations in northern Mexico, the landing and siege at Vera Cruz and General Winfield Scott's march to Mexico City. This chapter covers the company's activities from West Point in September 1846 to Tampico in January 1847. Figure 5 is a map showing the Mexican War Theater. Figure 6 shows the northern campaign.

The Brazos

On 24 September 1846, the newly-formed engineer company left its post at West Point to join General Zachary Taylor's command "without delay." The company, seventy-four strong including the three officers, set sail on 26 September aboard the *Clinton* from New York and arrived at Brazos Santiago, Texas, on 12 October.¹ The trip by sea was uneventful, although Brevet Second Lieutenant McClellan did see fit to fill a page of his diary with his description of how to properly run a ship.²

The port area at the mouth of the Rio Grande became known as "The Brazos" and included the town of Point Isabel, the southern tip of Padre Island, a lifeless sand-spit known as Brazos Island, and an inlet between Padre and Brazos Islands known as Brazos Santiago. This area is depicted in Figure 7. Brazos was the port for debarking newly arriving troops and staging supplies, and it quickly became crowded. On 12

October 1846 Company A arrived at this barren sandbar and waited its turn to move further inland. McClellan describes Brazos as "the very worst port that could be found on the whole American coast." The soldiers dug for drinking water and constantly fought sand storms.³

Having endured the Brazos, the company crossed a shallow ford on 17 October and marched on to the Rio Grande. From there the engineers traveled up-river and arrived at Camargo, Mexico, on 2 November. Camargo is a little over a hundred miles up the Rio Grande--the furthest upstream that the steamers could travel. This small town was one of several along the Rio Grande which Taylor used as staging areas for the upcoming battle at Monterey--a battle in which the engineers expected to take part.⁴ As they passed through Matamoros, Mexico, about a third of the way to Camargo, McClellan fell ill to malaria and dysentery and remained there at a hospital for almost a month. He rejoined the company at Camargo on 14 November, not having missed anything of note.⁵

The Pick and Shovel Brigade

At this logistics base the engineer company again waited, this time for its supply train.⁶ During the delay, the soldiers kept busy, having instruction in "the school of the engineer soldier" and constant practice in infantry drills. With one exception, all of the soldiers in the company achieved a high standard of drill.⁷ On seeing the engineer drill, the several thousand line soldiers at Camargo began to refer disparagingly to the engineer company as "the pick and shovel brigade." The engineer officers advised the men of Company A that, much to the

surprise of the infantry, when the time came for heavy work, labor details from line units and under the control of engineer officers and soldiers, would be the real "pick and shovel brigade." The officers also assured the engineers that when the time came for close fighting, the engineer company would be at the front.⁸

Roadmarch

At the national level, the focus of the war shifted from Taylor's campaign in the north to Scott's campaign in the south. On 29 November, in response to this shift, the engineer company departed Camargo, returned to the Brazos and prepared to proceed to Tampico by sea. The Sappers sailed from Camargo to Brazos on the steamer Corvette, but on 6 December their mode of transportation changed from ship to foot. Taking only a small portion of their tools, the engineers went back upstream to Matamoros and joined the column of General Robert Patterson.⁹ From there they traveled overland, via Victoria, to Tampico. The navy transported the remainder of their equipment to Tampico, where it was waiting for the engineers when they arrived.¹⁰

Although McClellan had rejoined the company earlier at Camargo, fevers, diarrhea, and other diseases continued to take their toll. Several soldiers died, and Captain Swift and twenty others remained hospitalized at Matamoros when the company departed for Victoria on 21 December. The company left Matamoros without its commander and only forty-five of the original seventy-two enlisted men.¹¹

The company would not simply march to Tampico. Special orders from Taylor charged the engineers with repairing the road from Matamoros

to Victoria to make it "practicable for the artillery and the baggage train."¹² The army did not plan to use the road again, so they did the minimal amount of work necessary to allow the trains to pass. Large details of laborers from Patterson's column assisted the engineers, thus fulfilling their officers' earlier predictions as to who would constitute the "pick and shovel brigades."

The work on the road was labor-intensive, but the engineers completed most of it in a continuous manner that allowed the main column to move with regularity. Patterson divided his division into two groups, with the engineer company at the lead of the first column and Brigadier General Gideon Pillow¹³ bringing up the second column a day later. Picks, shovels and axes were the tools of choice for most of the work: filling ruts and ditches, felling trees, building small bridges and cutting stream banks to allow wagons to use ford sites. A typical day on this march saw the engineer company march out of camp well before daylight, find a section of the road that required work, if necessary request a labor detail, repair the road in time for the main part of the column to advance, and camp for the night. Patterson detailed his line units to form labor parties of various sizes, up to about two-hundred men. This upper limit of two hundred was due to the number of picks and shovels that the engineers had in their train, and not on the scope of the projects or the ability of the engineers to supervise the work.

Upon arriving at Victoria on 4 January 1847, the engineer company left Patterson's division and joined that of Major General David E. Twiggs.¹⁴ Prior to Company A's departure from Victoria on 13 January, Twiggs designated two companies of volunteers as a standing

labor force. These joined Company A as the "Pioneer Party" for the remainder of the march to Tampico.¹⁵ These two companies of volunteers possibly represent the first time that a commander specified a labor force for an unspecified mission. That is, Twiggs and the engineers knew that there was plenty of work on the road to Tampico, and having designated units to provide the labor details ahead of time would make the road repair more efficient. This increased efficiency came both from not having to request a work party each time one was needed and from the learning that occurred by the workers from day to day. This type of habitual working relationship is common in today's army.

The route from Matamoros to Tampico, via Victoria, is 354 miles and is shown in Figure 8. The company covered this distance, and repaired the road along the way, in thirty-four days--from 21 December 1846 to 23 January 1847--an average of more than ten miles per day. Accounts of the march, including that of the company's acting commander, Lieutenant Smith, give few details of particular missions or the total amount of work done. In a letter to his mother, McClellan sums up the engineering work as "a great deal of hard work," and fills the rest of the letter with his opinions of Mexico, the war, the volunteers and other subjects.¹⁶ Smith summarizes the effort: "A great deal of work had been done by details of volunteers and the engineer company in making the road practicable for artillery and baggage wagons."¹⁷ Smith, McClellan and others, however, recorded two jobs with some detail: a stream crossing of the San Antonio, a branch of the Soto la Marina; and the improvement of a short-cut known as the "mule path."

Organized Chaos

The first of these missions, the crossing of the Soto la Marina, took place between Matamoros and Victoria on 2 January 1847.¹⁸ Major George A. McCall,¹⁹ Patterson's Adjutant-General, scouted ahead of the work party to see what problems might lie ahead. McCall reported an "exceedingly difficult 'river crossing' about one mile in front" to Smith, who in turn rode up to the obstacle. In Smith's words: "It looked ugly." The banks of the stream were over 100 feet high and steep. The water was between two and three feet deep and about a hundred yards wide. The bottom of the stream was solid, except for a few yards of soft mud near the far shore. This mud would make it difficult for wagons to exit the ford. McCall predicted a two-day delay for the approaching main body of troops.

Smith estimated it would take several hundred men two or three days to prepare an ordinary road across the stream. Since they were only concerned with a single use of the crossing site, Smith decided to do as little digging as possible and rely heavily on drag-ropes to pull wagons through the soft spot near the far shore. The soldiers would still have to cut the banks on both sides--a very labor intensive process. Smith asked Patterson for a working party of eight-hundred men. Patterson thought this request excessive, considering that the engineers only had tools for about two hundred, but he ordered the detail anyway.

As the volunteer officers assembled the work detail, Smith moved the engineer company up to the stream and explained his plan to them. Time was the important factor here. McCall had discovered the

obstacle at about noon that day; therefore, the "pick and shovel brigade" had a lot of work had to do if the wagons were to cross before nightfall. Smith divided the workers into two groups: McClellan supervised 300 men on the near shore and Smith took the other 500 to the far shore. On each side the engineer officers further divided the work detail into three shifts. Smith held a hundred or so men in reserve, "to meet contingencies."

The engineer lieutenant then applied a motivational technique still used today: he would release the soldiers of each shift within an hour, providing they gave it their all during that hour. Smith told the first group to work as if "at a 'corn-shucking match' or as if the house was on fire"--this was a race against time. The second and third shifts took to the side of the road and waited their turn. Before the first hour was up, Smith sent the first shift to the bushes to recover and called for the second crew. The same rules applied to the other shifts, and the soldiers dug furiously and moved earth in the hopes of being released within their hour. The third shift completed the bank preparation work, which McCall thought would hold-up Patterson's column for two days, less than three hours after work began. Smith tested the crossing with the engineers' wagons and determined it to be ready for the rest of the troops. Patterson's column crossed before dark.

Smith admitted that this technique was not the normal method of employing work details. The usual day's work was "more regular and continuous, and without disorder." Although clearly successful, not everyone appreciated his innovative technique. Volunteer officers complained afterwards that the wild activity had so stirred up their

soldiers that it was several days before they got them all back in their proper places. Patterson happened upon the scene as the first and second shifts changed. The sight of hundreds of soldiers wildly digging, running and generally behaving as if at a "corn-shucking match," surprised the general and gave him an impression of disorder bordering on mutiny.

The Mule Path

The second mission described in detail by Smith and McClellan is a road construction project that saved the main forces one day's march.²⁰ The existing short-cut was nothing more than a mule path, the name by which the soldiers came to know the route. Local farmers told the engineers that, at some point in the past, bull carts had traveled this trail. Neither Smith nor McClellan believed these stories, however, and the engineers and two companies of volunteers spent the next several days on the "mule path."

The decision to provide this short-cut came after the engineer company left Victoria on 13 January 1847 and met a very rough road. On the first day alone, they had to prepare crossings at three boggy brooks, make many bad ravines and gullies passable, do a great deal of cutting with axes, and, on top of the engineer work, march ten miles. The streams required bridges, and the engineers had to use whatever materials they could find to build the spans. Making bridges of the short, heavy and crooked mesquite and ebony trees that grew by the roadside was extremely difficult and enough to convince the engineers

that an alternate route was in order.²¹ They began work on the mule path the next day.

On 14 January the engineers worked from dawn until dark and progressed about six miles. They built two bridges over small streams and began to cut a road out of the thick brush. The next day, the 15th, Smith simply summarized: "Another day's tremendous hard work." McClellan provides a few more details. He wrote about cutting the road through the mesquite forest, filling many gullies and two "bad arroyos" (dry gulches). They worked about five miles and finished for the day at 4:00 P.M.

On the 16th, they got an earlier start: reveille at 3:00 A.M. They left camp an hour later and began work at daybreak at the point they had finished the previous day. They could not ford the La Tula stream and had to bridge once again. Fortunately, the available timber here was longer and straighter and made the work easier than that of three days earlier.²² McClellan recorded "swearing like a trooper all day" due to the number of rocks in the road. Twiggs, normally in a foul mood anyway, rode forward and "helped [the engineers] wonderfully by his swearing," as they "cussed [their] way over another mile and a half."²³

The condition of the path improved the next day and the company covered eleven miles. They continued to work after the main part of the army had camped for the night, thus causing them as little delay as possible. After another 3:00 A.M. reveille on the 18th, the engineers and work details moved on and found the rest of the road to Tampico "rather stony in some places, but generally good." The company continued to work the road and arrived in Tampico on 23 January 1847.

The army trains and artillery could now negotiate the mule path. Four days of work by Company A and its work details had saved the main body of line troops a day's march. Four years after the march, Smith closed his report to Congress by characterizing the entire operation as "an uninteresting march over a country the soldier's reminiscence of which is summed up in the expression 'bad roads and hard work.'"24

Tampico

At Victoria, the engineer company, along with a good portion of Taylor's command, transferred to Scott's command for the coming assault at Vera Cruz. By the time the engineers arrived at Tampico, everyone knew of the Vera Cruz plan, except the soldiers. One of the editors of the New Orleans *Picayune* stationed at Tampico noted: "There is not a Mexican in this whole country who does not know that our troops are going to Vera Cruz, while in the United States, and even here, our own people are in the dark."²⁵ The stop in Tampico provided a welcome rest for the troops, but not officially knowing what was coming next was frustrating. McClellan grew tired of Tampico and longed for the "charm and excitement of a march," and was "most anxious for a big fight."²⁶

At this point, Company A did not enjoy the reputation it would earn by the end of the war. Their work thus far, while important, was neither glamorous nor daring. Glamour and danger would come soon enough for the young engineer company.

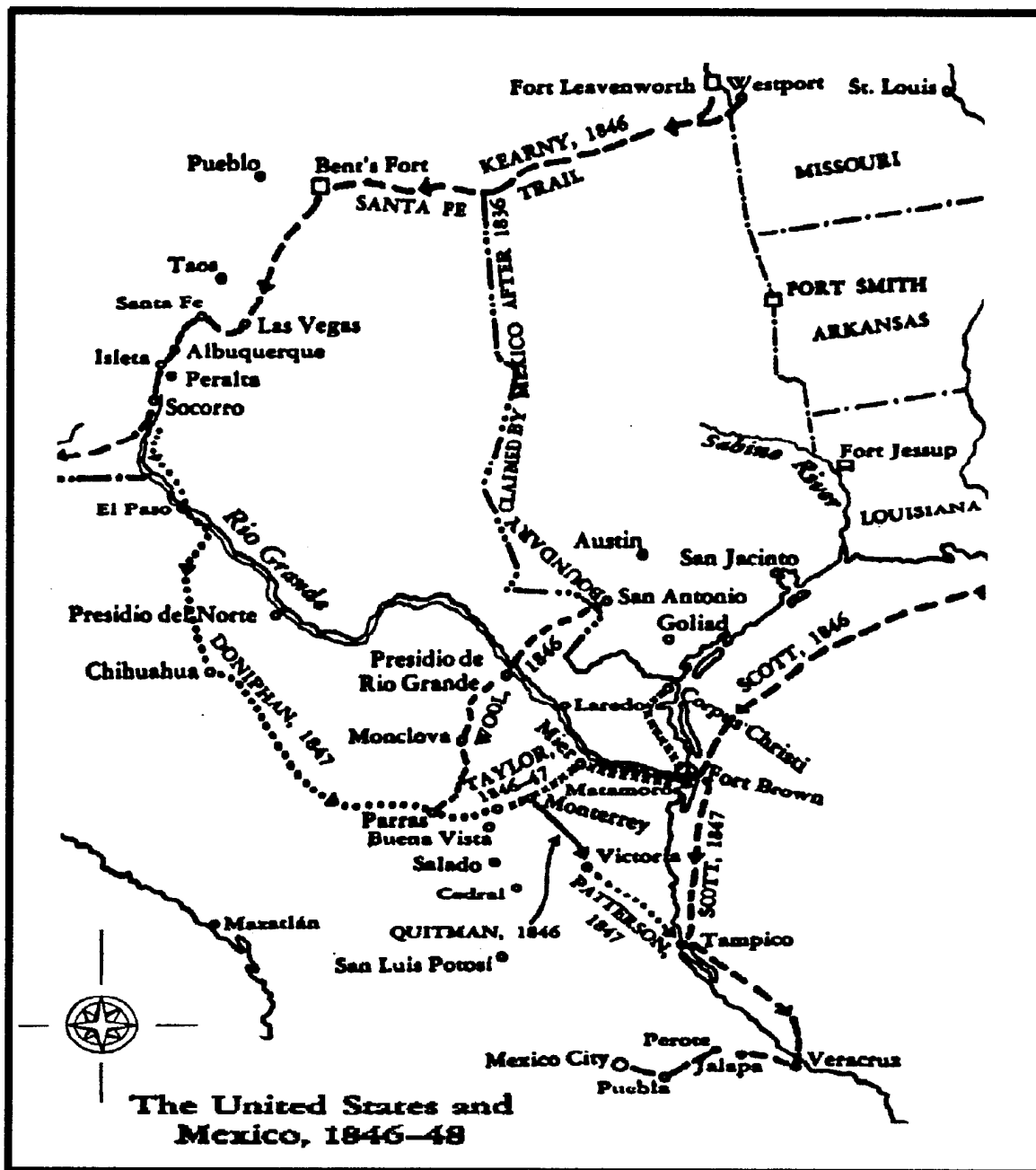


Figure 5. The Mexican War Theater. Originally printed in Alfred H. Bill, *Rehearsal for Conflict: The War with Mexico, 1846-1848*, (New York: Alfred A. Knopf, 1947), reprinted in Norman E. Tutorow, *The Mexican War: An Annotated Bibliography*, (Westport, Connecticut: Greenwood Press, 1981), 370.

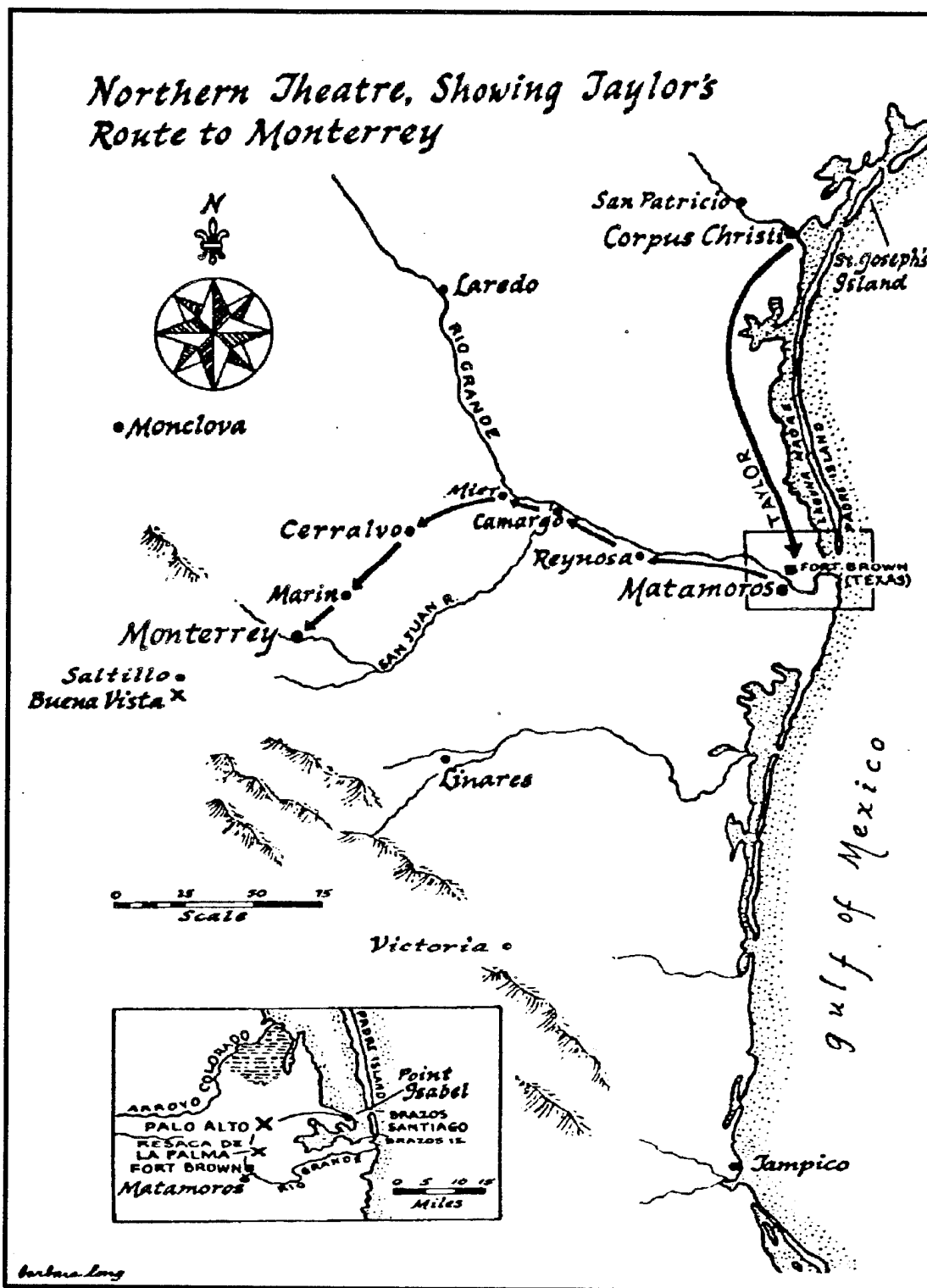


Figure 6. The Northern Theater of the Mexican War. Reprinted from Charles L. Dufour, *The Mexican War, A Compact History, 1846-1848*, (New York: Hawthorn Books, Inc. 1968), 41.

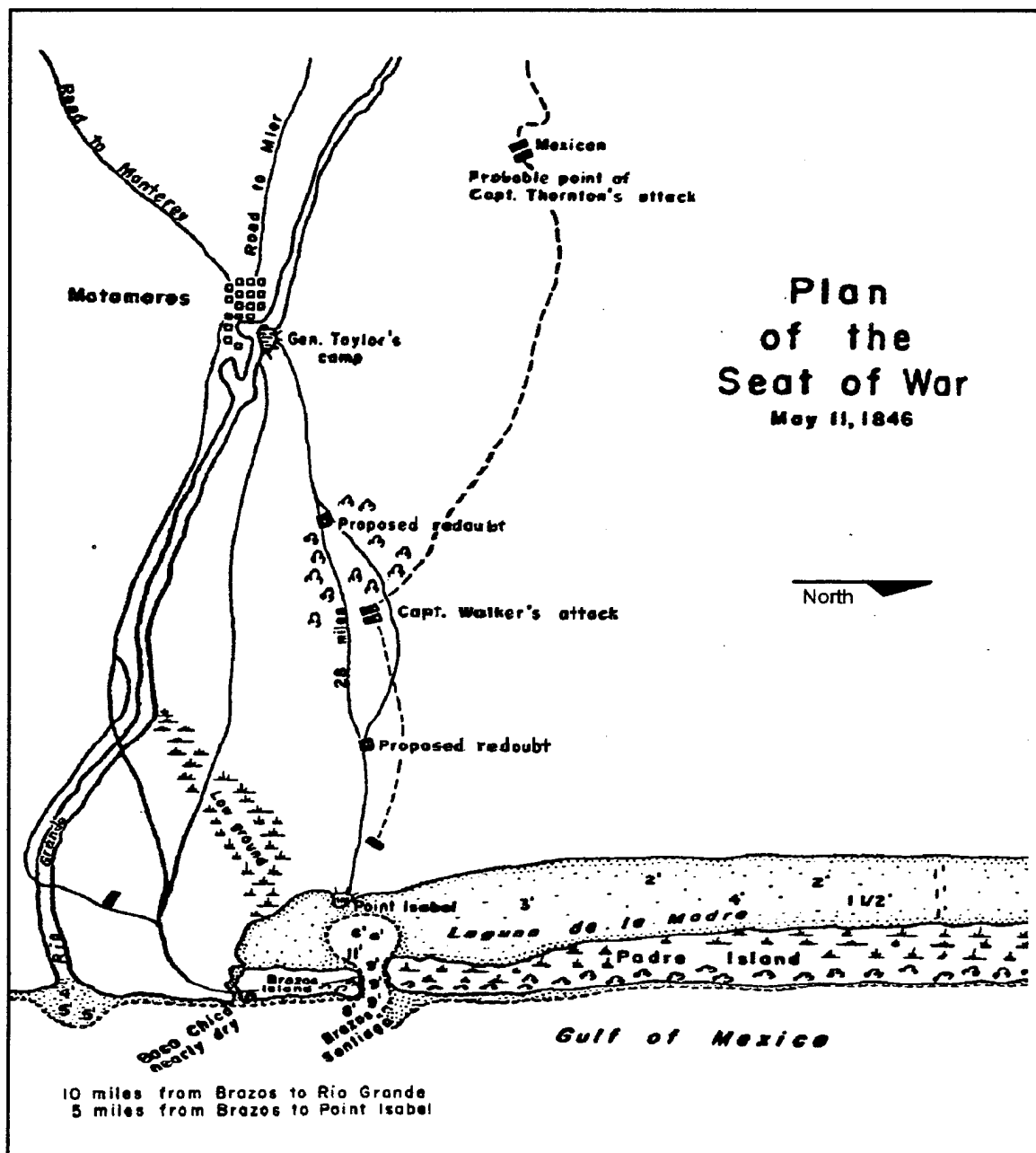


Figure 7. Brazos Santiago and Surrounding Area. Reprinted from George W. Smith and Charles Judah, *Chronicles of the Gringos*, (Albuquerque, New Mexico: The University of New Mexico Press, 1968), 70.

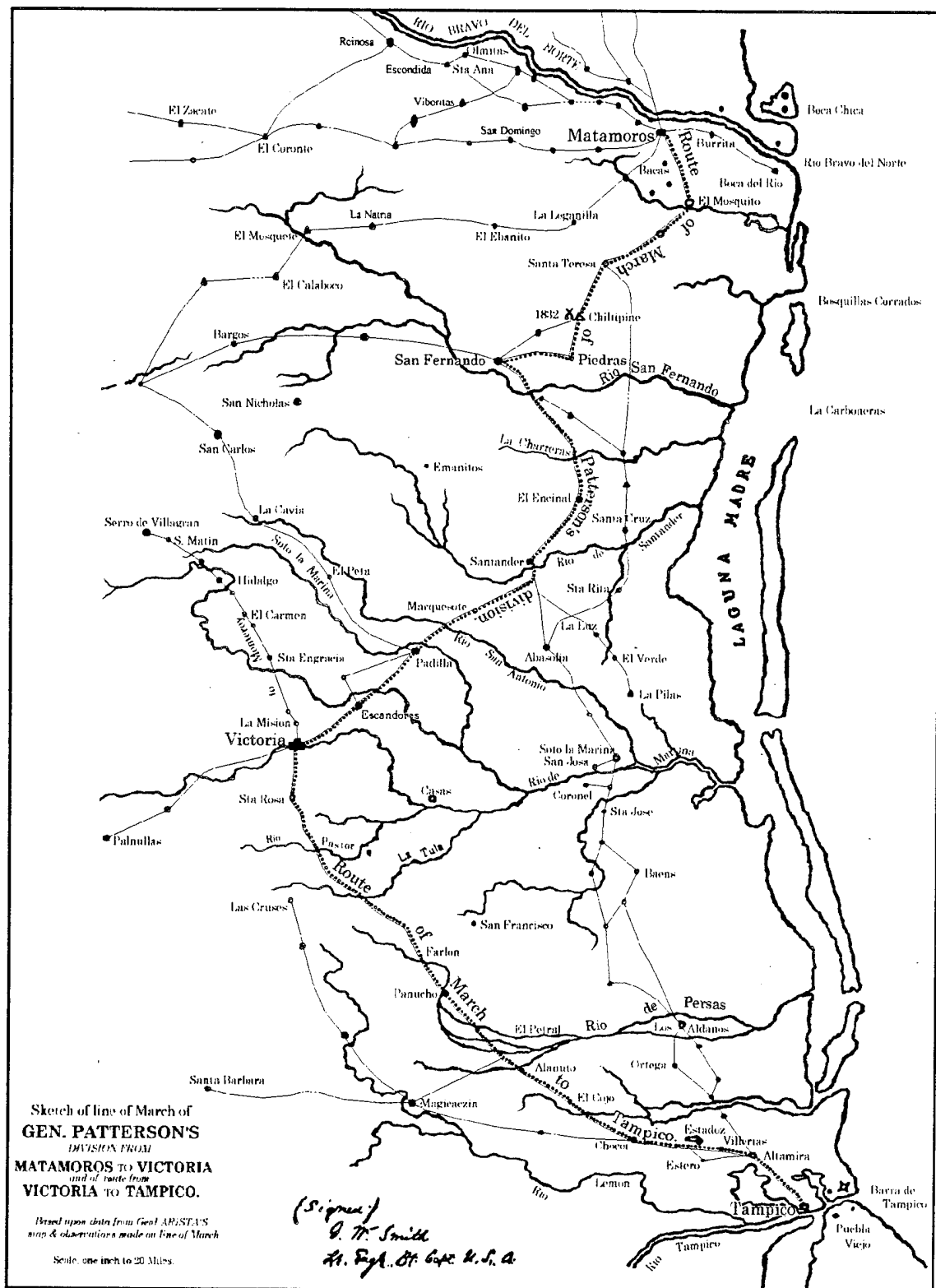


Figure 8. Route of March from Matamoros to Tampico. Reconstruction from map drawn by Gustavus W. Smith and presented in 31st Congress, 2nd Session, 1850, House Executive Document No. 13.

Endnotes

¹G.A. Youngberg, *History of Engineer Troops in the United States Army 1775-1901*, (Washington Barracks, Washington D.C.: Engineer School Press, 1905), 34.

²George B. McClellan, *The Mexican War Diary of George B. McClellan*, ed. William S. Meyers (Princeton: Princeton University Press, 1917), 7-8. McClellan also wrote of the lack of red wine and ice aboard the ship, and of one time having only raw tomatoes to eat.

³McClellan, 8.

⁴Richard A. McCoun, "General George Brinton McClellan; from West Point to the Peninsula; the Education of a Soldier and the Conduct of War," (Ph.D. Dissertation, California State University at Fullerton, 1973), 55.

⁵George B. McClellan to his mother, 14 November 1846, "The Papers of George B. McClellan." Library of Congress Manuscript Division. [Microfilm] Combined Arms Research Library, Fort Leavenworth, Kansas, 1977, A-1, 89-94.

⁶Youngberg, 35.

⁷The company cook, a "short, fat, dumpy, Long Island Dutchman," was a good cook, but was "grotesquely awkward" in formation, due to his refusal to learn the drills. Only after Smith marched him out into the chaparral of the Mexican countryside and threatened to run him through with his sword, did he learn the drills. Gustavus W. Smith, *Company "A" Corps of Engineers, U.S.A., 1846-1848, in the Mexican War*, (Willets Point, New York: The Battalion Press, 1896), 10.

⁸Smith, 10.

⁹Robert Patterson, from Ireland, Pennsylvania, served with the 2nd Pennsylvania Militia from October 1812 to April 1813 as captain, lieutenant colonel and colonel. He served with regular units from April 1813 until he was discharged in June 1815, achieving the rank of captain. In the Mexican War he rejoined the volunteer ranks as a major general in July 1846 and served until July 1848. He donned the uniform one last time at the beginning of the American Civil War as a major general of the Pennsylvania Volunteers from April through July 1861. Francis B. Heitman, *Historical Register and Dictionary of the United States Army*, (Washington D.C.: Government Printing Office, 1903), 775.

¹⁰The company had to "leave behind us everything in the shape of heavy baggage." McClellan, for example took only a small carpet bag and a pair of saddle bags. George B. McClellan to his sister, 20 December 1846, McClellan Papers, A-1, 95.

¹¹Youngberg, 35.

¹²Smith, 12.

¹³Gideon Pillow began his military career as a brigadier general of the Tennessee Volunteers in July 1847. He was promoted to major general in April 1847 and was discharged in July 1848, following the conclusion of the Mexican War. In the American Civil War he served as a brigadier general in the Confederate States Army from 1861 to 1865. Heitman, 792.

¹⁴David Emmanuel Twiggs joined the 8th Infantry as a captain in March 1812. He earned a promotion to major in September 1814 before taking a break in service for six months, from June through December 1815. He returned to service as an infantry captain and earned promotions during the years preceding the Mexican War up to colonel in June 1836. After the beginning of the Mexican War, Twiggs was promoted to brigadier general and later earned a brevet to major general for gallantry displayed at the Battle of Monterey. He left the service in March 1861 to become a major general in the Confederate States Army, a rank he held until his death in July 1862.

¹⁵The two companies are "Guy Henry's company of the 3rd, and Gantt's of the 7th." McClellan, 50. They were under the collective command of Major Henry of the 3rd Infantry. Congress, House, *A Report on the route of General Patterson's division from Matamoros to Victoria, and of the troops detached from General Taylor's army from Victoria to Tampico*, report prepared by Gustavus W. Smith, 31st Congress, 2nd Session, 1850, House Executive Document No. 13, 5.

¹⁶George B. McClellan to his mother, 4 February 1847, McClellan Papers, A-1, 107-111.

¹⁷Smith, 13.

¹⁸The story of the stream crossing is from Smith, 13-15, and McClellan, 41.

¹⁹George Archibald McCall won distinction with Worth's 3rd Infantry in the Florida Indian War. He became Worth's Assistant Adjutant General in July 1846 and was promoted to major in December 1846. He won two brevets, to major and lieutenant colonel, at Palo Alto and Resaca de la Palma early in the war. In the Civil War he was a Brigadier General of Volunteers in the Union Army. George W. Smith and Charles Judah, *Chronicles of the Gringos*, (Albuquerque, New Mexico: The University of New Mexico Press, 1968), 484.

²⁰The story of the mule path is from Smith, 15-16, and McClellan, 46-50.

²¹Smith in 31st Congress, 2d Session, House Executive Document No. 13, 5

²²Smith in 31st Congress, 2d Session, House Executive Document No. 13, 5.

²³McClellan, 48.

²⁴Smith in 31st Congress, 2d Session, House Executive Document No. 13, 7

²⁵Lumsden in Smith and Judah, 172.

²⁶McClellan, 51, and George B. McClellan to his sister, 23 February 1847, McClellan Papers, A-1, 113. As a post script to his letter, McClellan stated: "I'll write when the fight is over and let you know what kind of affair it is."

CHAPTER 4

THE SIEGE OF VERA CRUZ

Lobos Isle and Anton Lizardo

After the march from Matamoros, the engineer company remained at Tampico for a month and two days. They sailed from that Mexican port on 24 February 1847 on the small schooner *Orator*, a ship which Lieutenant McClellan thought had "very inferior accommodations."¹ Between departing Tampico and arriving on the beaches at Vera Cruz on 9 March, the company moved via several ships and through several staging areas. These movements are shown in Figure 9. The first was the Isle of Lobos, a small coral reef about three-quarters of a mile across, twelve miles from the Mexican coast, sixty miles south of Tampico and one hundred thirty miles north of Vera Cruz.² General Scott used Lobos as the point to consolidate and organize his forces before moving south to Vera Cruz. Arriving troops and assault landing craft from the United States came in at Brazos Santiago, while those transferred from General Taylor to Scott assembled at Tampico. Since Scott considered the harbor at Tampico too small, and a link-up at sea too risky, he decided to stage at Lobos.³

There were some sixty other ships at Lobos when the *Orator* arrived. The engineers stayed there long enough to go ashore and determine that there was nothing worth going ashore for.⁴ Scott waited

until enough landing craft had arrived (sixty-five of the one hundred forty-one that Scott had ordered)⁵ before ordering the fleet to move south, which they did on 2 March. Scott used this time, about two weeks for most units, to drill the troops and organize his command into three divisions under three major generals: William J. Worth⁶ (regulars), David E. Twiggs (regulars) and Robert J. Patterson (volunteers). He planned to use Worth's division as the assault troops in the landing, Patterson's division as the follow-on wave, and hold Twiggs' division in reserve. Scott assigned the men to ships and landing craft accordingly. At this point Scott's staff listed Company A, not under a division, but under "Army Troops."⁷

The flotilla sailed south, the engineers still in the *Orator*, past Vera Cruz, and arrived at the Anton Lizardo lagoon on 5 and 6 March. The isle of Anton Lizardo is about 10 miles from Vera Cruz and was Scott's intermediate staging base for the landing. Here leaders made final assignments to landing crafts, and the Company of Sappers, Miners and Pontoniers temporarily joined Worth's division for the landing. It was also here that the company's commander, Captain Swift, and the other soldiers who had remained at Matamoros rejoined the company. Swift's health had improved only slightly, but Colonel Joseph G. Totten, Scott's Chief Engineer, "had not the heart to order him home before Vera Cruz was over."⁸ Company A also gained a new officer at Anton Lizardo, Lieutenant John G. Foster,⁹ an engineer and West Point classmate of George McClellan.¹⁰

Surf-boats and Tow-Lines

The soldiers would land on the beaches in assault landing craft, called flatboats, or surfboats. These surfboats were relatively lightweight, came in three sizes (so they could be easily stacked) and could each carry about forty soldiers. The boats each had a crew of eight--a coxswain, six oarsmen and a petty officer, and a naval officer was in charge of each group of ten surfboats. Soldiers loaded the first landing crafts, for Worth's division, on board the frigate *Raritan*, and steamers *Princeton* and *Edith*. It is aboard this last ship that Swift and the engineer company left Anton Lizardo.¹¹

By the evening of 7 March 1847 the troops were organized and ready for an early morning landing. However, the next morning's weather prediction was not good--Scott expected a "norther" (sudden northerly gale)--and he postponed the operation a day. On the morning of 9 March the fleet set sail for the final staging base, the Island of Sacrificios. Sacrificios is three miles south of Vera Cruz and directly off the beach where the landing took place. At about 1:30 P.M. the first ships anchored at Sacrificios, in view of Vera Cruz, and the troops began transferring to the surfboats.

At Sacrificios the soldiers loaded the surfboats according to the load plans and linked them in long tow lines of ten to twenty surfboats each. A steamer pulled these tow lines to the shore, with the engineer company being pulled by the *Princeton*. The soldiers were eager with "bayonets fixed and colors flying" but soon fell silent as the first shot flew overhead. The beach ahead was exposed and the

formidable castle San Juan de Ulúa was within sight. They eyed the batteries at Vera Cruz, fully expecting them to open up at any moment.

In the Face of the Enemy

The anticipated Mexican resistance to their landing did not develop. The Mexican commander at Vera Cruz, Brigadier General Juan Morales, apparently thought he could not risk any of his small garrison force in an attempt to repel the invasion.¹² The Americans were actually most vulnerable as they first landed on the beach. However, Morales' lack of action at this point allowed them to complete what was perhaps the most orderly assault landing in history. Quartermaster Sergeant W.C. Lott summarized the landing in his 1899 article:

Between the hours of six o'clock and ten o'clock in the evening, twelve thousand American Regulars and volunteers fully armed and provisioned and prepared for immediate battle were landed from the open sea, through the surf, upon an exposed beach, in the face of the enemy and under the distant fire of the strongest fortification on the continent, without accident or the loss of a single life.¹³

The first troops planted the American flag on the sand hills above the beach at 5:40 P.M., accompanied by the "Star Spangled Banner" being played by numerous bands on the waiting ships.¹⁴

The feeble Swift made the landing only by being carried ashore by two of his sturdier soldiers. Lieutenant Smith noticed that "the captain showed a wonderful increase in vitality after he reached the shore." The next day, however, Swift remained exposed to the hot sun for three hours and his condition deteriorated rapidly, to the point of losing consciousness. Smith arranged for his transportation back to the United States on the next available steamer. Swift soon departed Vera Cruz for New Orleans. Sadly, Swift died within twenty-four hours of his

arrival. The soldiers of the company would not learn of their commander's death for at least two months.¹⁵

The Foundations of a Siege

The walled city of Vera Cruz, although small, was densely populated and defensible. The fortified castle San Juan de Ulúa, on a reef about a half-mile off shore, further protected the seaward side of the city. Incorporated into the walls of the city were two large forts, Fort Concepción on the north and Fort San Fernando on the south, as well as other, smaller, forts. These fortifications are shown in Figure 10. Although Morales' garrison was small, they were well prepared to defend the city and an attempt to take Vera Cruz by assault would be costly. However, surrounding Vera Cruz and slowly starving the city into submission was not without a possibly heavy cost either. The season for yellow fever--the "dreaded vomito"--was rapidly approaching. Unless Scott captured Vera Cruz quickly and moved his army away from the disease-breeding beaches and into the higher interior of Mexico, he stood to lose more troops to disease than to Mexican artillery. Scott, therefore, decided to lay siege to the city and reduce it with a sustained artillery bombardment.¹⁶

Scott's army began siege operations at Vera Cruz on 10 March 1847, following procedures set by the French master Vauban in the late 18th century. The engineer officers had learned these procedures at West Point and were eager to put them to use here. The general plan called for Scott's army to surround the city along the line of investment to cut off supplies entering the city. Between this line and

the city, artillery batteries would be emplaced to pound the city walls. As the situation permitted, the engineers would move these batteries closer to the city. Scott's army would build other fortifications (saps and parallels) connecting these batteries to give the troops unrestricted movement between positions and protection from possible enemy sorties from the garrison.

Siegecraft

Engineer work to support this plan included opening a road along the line of investment (10-12 March), cutting the city's water supply (13 March), reconnoitering (10-18 March), siting and emplacing both army and naval gun batteries (13-25 March), and supervising the construction of the siegeworks (16-25 March). After Scott successfully completed the siege, the engineer company made a survey of the enemy's defenses of the city, dismantled the batteries and magazines, and placed the army's general engineer train into depot (29 March-13 April).¹⁷

After spending the night of 9 March on the sands of the beach, the engineers assisted in the unloading of the boats and then took up a position in the line of investment, alongside the 3rd Artillery. The Mexicans took a few scattered shots at the invading army, but the fire was ineffective, and the troops were able to move about freely. The engineer company had previously been with Worth's division; however, they now reported to Patterson. About 1:00 P.M. Patterson instructed Smith to "locate and open a road through the chaparral to the old Malibran ruins," an old monastery located about a mile and a half south of the city. The company finished the work that afternoon and then

pushed on to a railroad line that ran south out of Vera Cruz and parallel to the road. A party of volunteers from Pillow's brigade did this work, with twenty-five men from Company A providing security. This arrangement of the engineers guarding a work party made up of soldiers of the line brings a new twist to the "pick and shovel brigade" tale. This role reversal was made complete when the engineers drove off some Mexican soldiers who had taken positions in the chaparral, while the infantry continued to dig.¹⁸

The engineers completed the roadwork on the 11th, extending the combat trail along the complete line of investiture to the shore north of Vera Cruz. The working party received harassing fire from the Mexicans all the while, killing one rifleman and wounding several, including a Volunteer Lieutenant Colonel. McClellan described the work as "very tedious, tiresome and difficult . . . [and] not at all facilitated by the shells and shot that continually fell around us." Two complications faced the engineers, apart from the harassing fire: large, steep hills of loose sand along the line of investment and forests of vegetation in between those hills. One particularly large hill was a magnet for Mexican rifle and cannon fire, and it was here that the soldiers mentioned above were hit. After the engineers cut the road over this hill, Twiggs' division moved over the road to continue the encirclement of the land-side of the city. Because of the difficult terrain, Scott did not completely surround the city until 18 March. The engineer company then reported back to General Headquarters and its soldiers moved back to their old position on the line after a brief rest at Malibran.¹⁹

While the work parties were cutting the road, McClellan found the aqueduct that supplied Vera Cruz with water. He reported this through engineer channels to Totten, Scott's Chief Engineer. The following day, the 13th, Smith, McClellan, and several engineer troops cut the aqueduct, thus denying fresh water to the city. After this relatively quick mission, the two engineer officers set out on an unauthorized reconnaissance expedition. They moved to within nine-hundred yards of the city walls, well in advance of the line of friendly troops. They were able to record the general layout of the enemy's works and the ground in between the two armies. After reporting to Totten, the senior engineer remarked that Smith and McClellan were the only two officers providing him with useful information.²⁰ Thus, the association of engineer officers with battlefield reconnaissance continued to grow.

Engineer Business

One of the larger and more visible engineer missions in the war is that of positioning the artillery and supervising the preparation of the siegeworks at Vera Cruz.²¹ Scott decided that he wanted to pound the garrison into submission through artillery fire and he turned the mission over to his engineers to determine where best to locate the batteries. The engineers, both in Company A and on the general's staff, explored the grounds inside the line of investment, chose locations for the artillery, mortars and naval guns, supervised the construction of the firing positions and connecting trenchworks, and saw to their repair after the works became damaged by Mexican fires. By today's standard,

having engineer officers determine the firing locations for the artillery is odd--that is an artilleryman's job. However, this was a siege in the Vauban style, and that meant it was engineer business. With one exception, several months later at Contreras, the engineers did not position the artillery during other, non-siege, battles in the Mexican War.

The process of placing the heavy guns that would fire upon Vera Cruz began shortly after the sappers cut the city's water supply. On the 13th, 14th and 15th of March, soldiers of the company, led by their officers, examined possible battery locations and reported their findings nightly to Totten. By the evening of the 15th, Totten had enough information to lay out a plan for the gun placements. He produced a map of the Vera Cruz area and showed Smith a general location, about six-hundred yards south of the walls of the city, where he thought the engineers would find a suitable site to dig-in the batteries. There was a road that ran south from the city and past the ruined monastery they had seen earlier, and it was along the side of this road that engineers were to locate the guns. There were two main advantages to this location: the road was an extension of the main street through Vera Cruz and it was out of effective range from the island castle. That the road was the southern prolongation of the city's main street meant that shots fired from this direction had a greater chance of causing damage throughout the length of the street. The city's exterior buildings would block fires from other directions, although the shots would damage those buildings.

Other engineers on Scott's staff had been looking for positions as well, in some cases assisted by enlisted soldiers from the engineer company. Captain Robert E. Lee, Corps of Engineers, had found a location for the battery of six heavy naval guns, to the west of the location pointed to earlier by Totten. The naval guns were not to go in, however, until after the army batteries had been sited. Finding locations for these army guns therefore became top priority--the warmer weather that brought the disease-carrying mosquitoes was fast approaching and Scott grew impatient.

Smith's plan to find the exact location for the army battery was for the officers (Smith, McClellan and Foster) to each take one third of the company at daylight the following morning (16 March) and start looking. On the 16th, they found a suitable location, although its communications route to the rear was "very difficult," and reported it to Totten that evening. Totten directed Smith to take Company A to that location on the 17th and lay out the battery. To further assist the engineer company, Totten gave Smith the services of the engineer officer who had earlier laid out the fortifications at Tampico: Lieutenant P. G. T. Beauregard.

By 2:00 P.M. the following day, the engineers had the battery traced out. However, Smith and Beauregard became less and less comfortable with the position. The route to the rear was exposed to enemy observation and fire (as the engineer company soon learned the hard way),²² and Beauregard thought the site was within range of the fortified Castle San Juan de Ulúa. While the company rested, Smith and Beauregard went to see the Chief Engineer. The two lieutenants

persuaded Totten to let them look again the following day for a better location.

While the engineers conducted their reconnaissance, Worth's pickets advanced a substantial distance closer to the city walls. This not only allowed the engineers to consider new terrain for possible gun emplacements, but it also allowed more American soldiers to look in and around the area intended for the guns. It was the commander of the Fifth Infantry, Major Martin Scott,²³ who ultimately found the location for the army's battery. After mistaking the major for a sergeant, Smith learned that Scott knew of a good battery site and followed him there.²⁴ Smith agreed that it was a good site: it formed almost a natural parapet, which would require less work, and the communications route to the rear was well protected. The spot was not on axis with the main street, however, and it was further from the city walls than the earlier site. In spite of these drawbacks, Smith and Beauregard recommended this site to Totten, who approved it.²⁵ The engineers abandoned the original position that they had laid out and began work on the newly approved position that night, the evening of 18 March.

Digging-In

As with the other labor-intensive chores, the work of preparing the fortifications and digging and covering communications trenches called for large work details from infantry and artillery units. The work party needed tools and the general engineer train provided them. Totten sent McClellan back to the beach, where the engineers kept their equipment, to lay out the tools for the arriving laborers. McClellan

arranged the tools and, when the work detail arrived after dark, issued each man a shovel and either a pick, axe or hatchet. This particular detail came from the 3rd Artillery, the Marine detachment, and the 5th Infantry, and totaled about 200 in all--again the limit imposed by the number of tools in the engineer train.

With the tools distributed, the engineer officers again became supervisors of work details. Totten detailed all the engineer officers in Scott's army, except for Totten himself, to oversee a part of the siegework construction. Each officer took some of the enlisted soldiers of the engineer company to assist him.²⁶

After distributing the tools, McClellan moved forward to supervise the work at Mortar Battery No. 1, while Smith took charge of No. 2. The engineers situated each of these three-mortar batteries such that the working party only had to remove part of the side of a hill to form the epaulments (large protective mass of earth in front of the guns) and cut the terreplein (level platform to place the guns upon) down to the proper level.²⁷

After Smith saw the mortar battery work off to a good start, he moved over to the naval battery and took shifts with Lee and Lieutenant Zealous B. Tower²⁸ in supervising its construction. The naval guns presented a challenge to the engineers, as they had not emplaced naval guns on land before. A small dispute arose when Lee and Smith could not agree on the size of the embrasures (the opening through which the cannon would fire) for the naval guns. Lee favored a smaller opening (offering greater protection) while Smith argued for a larger opening (offering less chance that the firing of the gun would damage the

fortification). The two officers raised the issue to Totten, who decided in favor of Lee. However, the initial fires some days later proved Smith correct as the embrasure quickly clogged with debris. To remedy the situation, the engineer soldiers first had to remove the blindage (brush and wood placed in front of the work to conceal its location), and then clear the obstructing debris to allow the guns to resume firing. The soldiers repaired the battery that night, and the renewed structure sported larger firing apertures.²⁹

Incoming Fire, Repair Work and Victory

The soldiers worked on building the batteries until the time the guns opened fire on 22 March, and after that repaired damage done by both friendly and enemy fire. The engineer officers and soldiers continued to work in shifts at the various work sites. Construction included not only the batteries themselves but parallels (trenches that ran parallel to the walls of the city and often joined batteries) and saps (trenches extended forward from parallels with the intent of starting a new parallel closer to the fortification or launching an assault).³⁰ Progress in all of these efforts was slow because of the dense chaparral and the small number of workers. The Mexicans spotted most of the American works and brought them under harassing fire throughout their construction, although this had little effect. One exception was the naval battery, which the Mexicans knew nothing of until it began firing.³¹

Soldiers usually repaired the works at night, when the guns fell silent and the laborers could work under the cover of darkness.

Damage done to the American fortifications was, in some cases, severe. On 23 March, one day after the firing started, the constant action so badly damaged one of McClellan's batteries that the engineers had to reform the firing platform and re-install all the revetting (the facing material, usually wood, sandbags or masonry, used to hold earth in place). If the engineers were not repairing damaged positions they were improving existing ones or preparing new positions further forward. McClellan dug in the magazine for one twenty-four-pounder position on the 23rd and built the traverses and magazine cover on the 24th. This battery finally opened up on the 25th, and, as McClellan reported, "gave it to the Mexicans about as hotly as they wished."³² That day Vera Cruz surrendered.

The two sides agreed to terms on 29 March 1847, and the Mexican garrison marched out "with drums beating, colors flying and laid down their arms on the plain."³³ The fighting at Vera Cruz was over; the engineers' work was not. The company moved its camp further inland and away from the wet sands of the beach. Totten attached Foster to his staff to survey the city and castle. Smith and McClellan returned to the beach to supervise the unloading of the remainder of the company's equipment, primarily the pontoon boats, and to collect all of their materiel at the Engineer Depot. The engineer company also dismantled the fortifications that they had labored to complete just days earlier.³⁴

A Sour Taste

Before closing out the Vera Cruz chapter of the engineer company's Mexican War story, I need to briefly mention that the authors of the three primary sources for this section (Smith, McClellan and Beauregard) each left disheartening words about how either General Scott or Colonel Totten had failed to properly recognize the engineers' accomplishments. Totten's failure to single Beauregard out in his report on the siege upset the lieutenant: "all his officers behaved so well . . . it would be invidious to distinguish between them." Beauregard argues that since he, along with Smith, selected three of the five battery positions, he deserved special mention. He even compares himself to Napoleon in saying that he deserved a brevet or at least a special mention in the Chief Engineer's report.³⁵

On 24 March 1847, the day that the battery that McClellan had supervised began firing, the lieutenant reported his work to Totten, who, in turn, asked him to report to Scott. The young engineer's visit delighted Scott, and he showed McClellan the last words he had entered into his report: "indefatigable engineers." McClellan, in his diary, was quick to point out his appraisal of the general's memory: "The echo of the last hostile gun at Vera Cruz had not died away before it was forgotten by the Commander in Chief that there was such thing as an engineer company." This feeling would resurface less than a month later as the engineers had to leave Vera Cruz with too few wagons and, more painfully, not at the head of the column, where McClellan thought they belonged.³⁶

Smith, in his official report of the siege, was understandably proud of the performance of his company saying that they: "have shown great willingness and skill in the important duties assigned them." He concluded his report on a somewhat sour note, however, noting that the engineer company had to watch the surrender ceremony from the sidelines:

A serious blow was inflicted on the military pride of the engineer company in not allowing them to participate in the ceremonies of the surrender, when it was well understood that the troops having had the most to do in the attack were selected to take a prominent part in the proceedings.

Smith felt that if Captain Swift had been there, the situation would have been different. Smith does finish his Vera Cruz chapter on a more positive note, though, citing several lines from Totten's report that speak very highly of Company A.³⁷

The three complaints, and the manner in which the officers present them, reflects the officer's personalities: Beauregard was looking for personal recognition, McClellan felt that his superiors' priorities did not match his, and the recognition that the engineer company received concerned Smith as commander. The company's contribution to the siege did not go unnoticed for long, however. Company A was awarded a silver campaign band for its guidon pike for its actions at Vera Cruz.

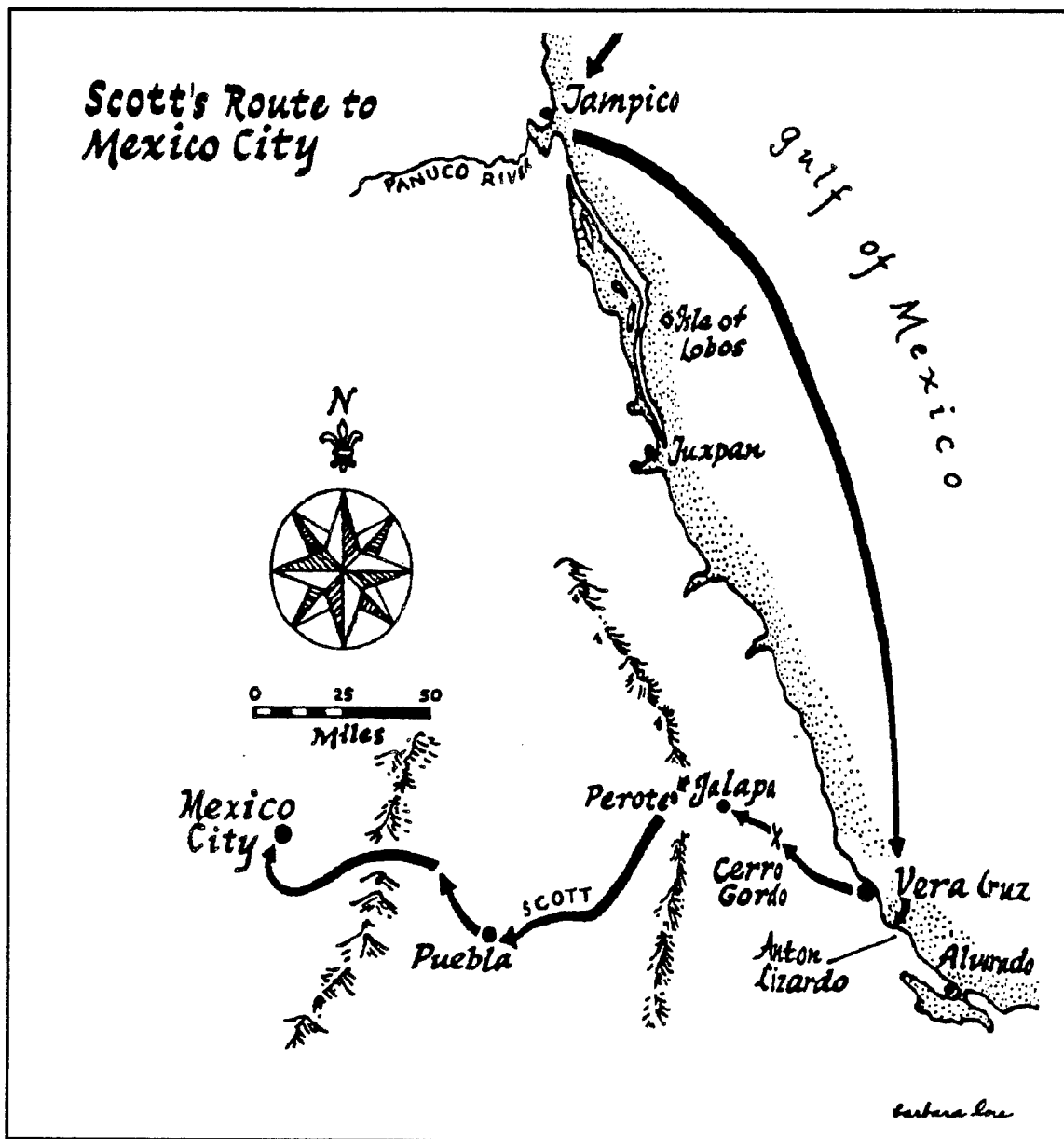


Figure 9. Scott's Route from Tampico to Mexico City. This map shows the Isle of Lobos, Anton Lizardo and Vera Cruz. Reprinted from Charles L. Dufour, *The Mexican War, A Compact History, 1846-1848*, (New York: Hawthorn Books, Inc. 1968), 202.

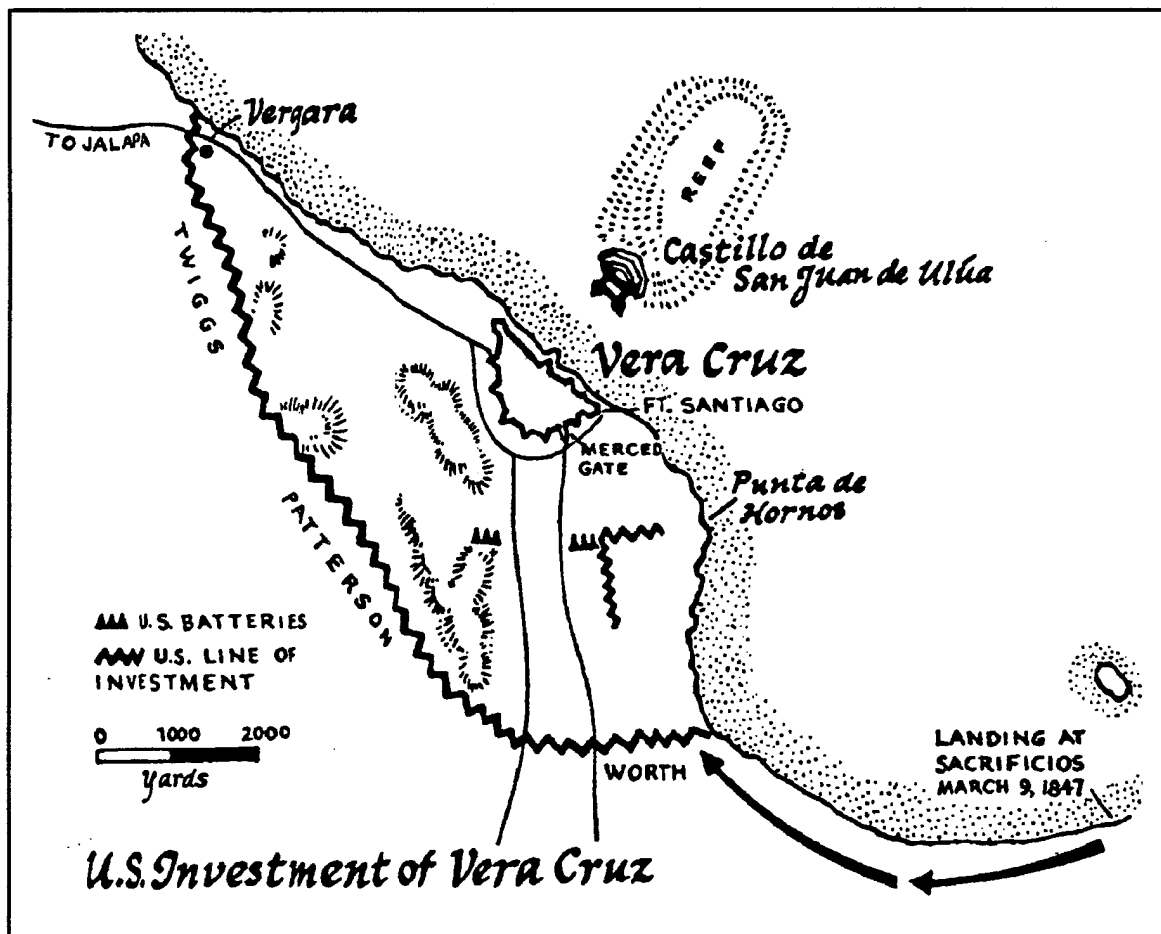


Figure 10. The Siege of Vera Cruz. The naval battery is on the west side of the road. Reprinted from Charles L. Dufour, *The Mexican War, A Compact History, 1846-1848*, (New York: Hawthorn Books, Inc. 1968), 202.

Endnotes

¹George B. McClellan, *The Mexican War Diary of George B. McClellan*, ed. William S. Meyers (Princeton: Princeton University Press, 1917), 51.

²N. C. Brooks quoted in McClellan, 51-52.

³John S. D. Eisenhower, *So far from God, The U.S. War with Mexico, 1846-1848*, (New York: Random House, 1989), 256-7.

⁴McClellan, 52.

⁵W. C. Lott, "The Landing of the Expedition against Vera Cruz in 1847," *Journal of the Military Service Institution of the United States* 24 (1899), 422.

⁶William Jenkins Worth joined the army in March 1913 as a lieutenant in the 23d Infantry. In his early career he saw duty as an artilleryman and ordnance officer. He earned brevets to captain and major for gallantry at the Battles of Chippewa and Niagara in the War of 1812, to lieutenant colonel for ten years of service in 1824, to brigadier general for gallantry in the Seminole Indian War, and to major general for gallantry at the Battle of Monterey under Taylor in 1846. In March 1847 Congress presented Worth with a commemorative sword as a testimony to his gallantry in the storming of Monterey. Worth died in May 1849. Francis B. Heitman, *Historical Register and Dictionary of the United States Army*, (Washington D.C.: Government Printing Office, 1903), 1061.

⁷Eisenhower, 257; and K. Jack Bauer, *Surfboats and Horse Marines, U.S. Naval Operations in the Mexican War, 1846-48*, (Annapolis, Maryland: U.S. Naval Institute, 1969), 78.

⁸George B. McClellan to his mother, 22 February 1847, "The Papers of George B. McClellan." Library of Congress Manuscript Division. [Microfilm] Combined Arms Research Library, Fort Leavenworth, Kansas, 1977, A-1, 114-115.

⁹John Gray Foster graduated fourth in his West Point Class of 1846, two spaces behind his classmate and friend, George B. McClellan. He was commissioned into the Corps of Engineers and joined Company A just prior to the landing at Vera Cruz. He served the remainder of the Mexican War with the engineer company and was seriously wounded as part of the storming party at Molino del Rey. Foster would later achieve the rank of major general in the Civil War. He earned brevets in the Mexican War to first lieutenant for gallantry and meritorious conduct at the battles of Contreras and Churubusco and to captain after the battle at Molino del Rey. At the beginning of the Civil War he was further breveted to major after his distinctive actions at Fort Sumpter, to lieutenant colonel for gallantry and meritorious service in the capture of Roanoke Island, to colonel after the capture of Newbern, North Carolina, to brigadier general after the capture of Savannah and finally

to major general in March 1865 for gallantry and meritorious service during the war. Foster died in September 1874. Heitman, 431.

¹⁰Gustavus W. Smith, *Company "A" Corps of Engineers, U.S.A., 1846-1848, in the Mexican War*, (Willets Point, New York: The Battalion Press, 1896), 17.

¹¹George W. Smith and Charles Judah, *Chronicles of the Gringos*, (Albuquerque, New Mexico: The University of New Mexico Press, 1968), 180-1; and Bauer, *Surfboats and Horse Marines*, 66-78.

¹²K. Jack Bauer, *The Mexican War, 1846-1848*, (Lincoln, Nebraska: University of Nebraska Press, 1992), 244.

¹³Lott, 427.

¹⁴Bauer, *The Mexican War*, 244. Bauer states that the landings began at 5:30 P.M. The discrepancy between Bauer and Lott on the time of the assault is a small one, considering the accuracy of timepieces of the day.

¹⁵Smith, 20.

¹⁶Scott's logic is from his memoirs, quoted in Smith and Judah, 184-5.

¹⁷G.A. Youngberg, *History of Engineer Troops in the United States Army 1775-1901*, (Washington Barracks, Washington D.C.: Engineer School Press, 1905), 36.

¹⁸Smith, 21; and McClellan, 55.

¹⁹Smith, 21; McClellan, 56; and P.G.T. Beauregard, *With Beauregard in Mexico: The Mexican War Reminiscences of P.G.T. Beauregard*, ed. T. Harry Williams, (Baton Rouge: Louisiana State University Press, 1956), 26.

²⁰Smith, 21; and McClellan, 56-57. McClellan said the aqueduct was cut on the 12th, Smith said it was cut on the 13th. The unauthorized reconnaissance also included, for McClellan, a little deer hunting. At this, he was successful, bagging a "slow deer" while Smith scouted ahead.

²¹The story of how the gun batteries were sited and prepared is from Smith, 22-26; McClellan, 58-67; and Beauregard, 27-29.

²²As the engineer company withdrew from the recently marked location, they came under fire from Vera Cruz. Although no one was hurt, the company was forced to take shelter for the duration of a twenty minute barrage and eventually scatter, run across an open field, and link-up in the shelter of some high hills. This incident reinforced the precarious nature of the battery location. Smith, 22-23.

²³Martin Scott joined the 26th Infantry as a second lieutenant in April 1814. After a three year break in service, he re-joined the

infantry, again as a second lieutenant. He began the Mexican War as a captain and was promoted to major shortly after it started, in June 1846. He earned two brevets while fighting with Taylor: to major at Resaca de la Palma just prior to his regular promotion and to lieutenant colonel at Monterey. Scott was killed on 8 September 1847 at the Battle of Molino del Rey. Heitman, 869.

²⁴Major Scott never introduced himself to Smith, and he wore no insignia of rank. Smith later asked another member of the Fifth Infantry for the name of "that fine old Sergeant." The amazed soldier let Smith know that he had been speaking with the "famous Martin Scott," their regimental commander. Smith, 23-24.

²⁵Beauregard noted that, as it turned out, Totten had previously visited that site [probably with Lee] and had said that it was good. Beauregard also pointed out that it was Smith who was assisting Beauregard, and not vice-versa. Beauregard, 27-28.

²⁶Smith, 24

²⁷McClellan, 61-62. Definitions are from Ian V. Hogg, *Fortress: A History of Military Defense*, (New York: St. Martin's Press, 1977), 155-158.

²⁸Zealous Bates Tower was the top graduate in his West Point Class of 1841 and was commissioned into the Corps of Engineers. He taught engineering at West Point and, from 1843-46 was involved with constructing the defenses of Hampton Roads. At Cerro Gordo he earned a brevet to first lieutenant for gallantry at Cerro Gordo. Four months later he was breveted to captain after the battles of Contreras and Churubusco. He was further breveted to major after the storming of Chapultepec, where he was wounded. At the beginning of the Civil War Tower earned brevet lieutenant colonel for gallantry while serving as the chief engineer at the defense of Fort Pickens, Florida. After that defense Tower was appointed a brigadier general of volunteers. He served in the operations of Northern Virginia until he was severely wounded at the Second Battle of Bull Run in 1862. During those operations he was breveted in the regular army to colonel for gallantry at the battle of Cedar Mountain, Virginia. He then served as superintendent of the U.S. Military Academy at West Point before returning to the field in 1864. He earned further brevet promotions, to brigadier general in March 1865 after the Battle of Groveton, Virginia, and to major general at the same time for gallant and meritorious service during the war. Tower died in March 1900. "Obituary: General Z.B. Tower," *Journal of the Military Service Institution of the United States* 26 (1900): 471; and Heitman, 966.

²⁹Smith, 24-25. Smith also relates the story of his disagreement with a navy captain who arrived to the damaged battery and wanted to begin firing immediately. Although Smith won this confrontation as well, he was ordered to report to General Scott and explain why the naval battery did not open fire that afternoon. Scott listened to Smith's story and absolved him, saying: "Thank God I have young officers with heads on their shoulders and who know how to use them." Smith thought this comment somewhat odd, as he would have expected the same decision of any sergeant in the engineer company.

³⁰Definitions are from Hogg, 157-158.

³¹The Mexican Chief Engineer told Colonel Totten this after Vera Cruz capitulated. Even after the naval guns began firing, the Mexicans only knew that "something" was going on there. McClellan, 63-64.

³²McClellan, 70.

³³McClellan, 73.

³⁴Smith, 28; and McClellan, 73.

³⁵Beauregard, 30-31. Napoleon, at the siege of Toulon, skillfully established a battery position, thus marking him as "promising" in the eyes of his superiors.

³⁶McClellan, 70-71.

³⁷Smith, 27.

CHAPTER 5

TO THE HALLS OF MONTEZUMA

The successful siege of Vera Cruz gave General Scott a seaport from which to base future operations. His mission to subdue Mexico now led the American Army to Mexico City. Scott had to choose between two roads, shown in Figure 11, that led away from the disease-prone beaches and to the high plateaus of the nation's interior. Because it was the better road, he decided to march to the Mexican capital on the National Road, the same invasion route that Cortez had taken in 1519.¹

Transportation Woes

The Americans began leaving Vera Cruz for the interior of Mexico on 8 April 1847, with Major General Twiggs' division in the lead. Major Generals Patterson and Worth followed on the 9th and 13th, respectively. Much to their surprise, not only did the engineers not move out at the head of the lead division, Scott's planners seem to have completely forgotten the engineers altogether. Smith requested both wagons and movement instructions on several occasions. Scott's staff politely told him that when the general was ready to move the engineers, they would receive the equipment and orders.

The engineer company finally received "permission" to move with the General Headquarters (normally units receive orders, not permission, and the engineers were normally attached to one of the divisions for

movements, not the General Headquarters). This permission came on the morning of the 12th; however, Scott's Chief Quartermaster told Lieutenant Smith that Worth had taken the last of the wagons and mules. Smith then arranged for the adjutant of the engineer section, and one of the officers who had recruited engineers back at West Point, Lieutenant Stevens, to order the Quartermaster Department to issue the next available wagon teams to the waiting engineers. As it happened, the navy was unloading wagon teams from ships that afternoon.

The engineers soon learned that their transportation troubles were not yet over: the mule handlers were Mexicans, could not speak English, and some of them had never handled pack animals before; the mules had just swum ashore and were in no mood to begin hauling wagons; and the number of wagon teams that the company received was about half of what it needed. One mule team even broke down before the company left the city. Smith, in an attempt to get a replacement, took five engineers and three mule handlers into the mule pen. One Mexican mule handler had his hand broken by a wild mule, the second had his leg broken and the third deserted. Three mules were killed in the brawl.²

A Rough Start

In spite of the mule fiasco, the sappers set out from Vera Cruz a half-hour before daylight on 13 April. The going was slow because of both the stubborn mules and the terrain (the road was over loose sand and traversed several steep hills). The soldiers placed their weapons in the wagons and put all their effort into keeping the mules moving. When they reached the steep ridges near Vergara, shown in the Vera Cruz

map in Figure 10, they had to remove half of each wagon's load so that the mules could make the climb. They would return later for the other half of the load. After the exhausted engineers spent a night in the sand ridges along the road, they arrived at Santa Fé on the 14th--only eight miles from Vera Cruz, and with only half their equipment. Smith then had the soldiers empty the wagons and he and Lieutenant Foster returned for the remainder of the equipment. On the trip back to Vergara, the men had to help the mules push even the empty wagons up the hills. The second trip was quicker: Smith was back at Santa Fé after dark on the 14th.

The road from Santa Fé was better, although the engineers still had to move their equipment up steep hills in two shifts. In this plodding manner, they reached the National Bridge (*Puente Nacional*) on 16 April, at about 2:00 P.M. Here Smith met with Worth and learned that Worth wanted the engineer company to join him in his attack the following afternoon (the 17th) at Cerro Gordo (literally "fat mountain," also known as *El Telegrafo*), which was about twenty miles from the bridge. The engineers were too exhausted to join Worth's night march to Plan del Rio, which was already in progress. Smith promised Worth that he would join the division by noon the following day. The engineer company then rested until 11:30 P.M. and made Plan del Rio by 11:00 A.M. on the 17th.³

Cerro Gordo

On the Mexican side, General Antonio López de Santa Anna turned his attention southward to Scott's army after the battle at Buena

Vista.⁴ He knew of the successful landing at Vera Cruz and correctly anticipated that Scott would choose the National Highway for his advance on Mexico City. Santa Anna was able to gather a force about double that of Scott's (12,000-18,000 Mexicans versus 8,500 Americans).⁵ Santa Anna needed to defeat Scott on the battlefield so that Mexico could sue for peace on favorable terms. He chose to make his stand at the very defensible terrain near Cerro Gordo, shown in Figure 12.

The National Highway, as it passes between the thousand-foot Cerro Gordo mountain and the Rio Del Plan, provides an excellent location for an ambush. Santa Anna thought that the Americans would have to come down the road at this point, because the ground to the north of Cerro Gordo was too broken, and the south was impassable because of the river and severe cliffs. The Mexican general did not factor the American engineers into his planning.

The Trail and La Atalaya

The company of engineers, having struggled with the mules all the way from Vera Cruz, arrived just before the battle was to begin and could not participate in any reconnaissance missions. However, others of Scott's engineers--among them Captain Lee and Lieutenant Beauregard--had been in the area for several days and had discovered a path to the north of Cerro Gordo that they could make trafficable. Lee supervised the improvement of this route that soldiers came to know simply as "the Trail." Lee was able to do this without being detected by the Mexicans, allowing Twiggs' division to attack from the unexpected north.⁶

At Plan Del Rio, Smith divided the company into two groups. Lieutenant McClellan took ten men and reported to Brigadier General Pillow for action in his brigade's supporting attack against the Mexican batteries. The remainder of the engineers went with Smith to report to Twiggs. Lee, acting as Twiggs' engineer, told Smith to let the soldiers of the company rest while the two officers reported to Twiggs. At their meeting, Twiggs told Smith that he was about to attack and that he wanted the engineer company brought forward as quickly as possible. Twiggs' action that day, the 17th, was Colonel W. S. Harney's⁷ movement up the slope of La Atalaya, slightly north of and a little smaller than Cerro Gordo. Harney had to fight unexpectedly for the hilltop as Mexicans from Cerro Gordo saw the movement and launched their own counterattack. After a brief battle, La Atalaya was in American hands. The fighting was over before Smith's portion of the engineer company arrived.

Lee directed the engineers to construct a battery on top of La Atalaya and provided a large working party for the labor. The work was extremely difficult because, in most places, the rocky soil was only several inches deep. Lieutenant Peter V. Hagner,⁸ an ordnance officer, was in charge of getting one of the twenty-four pounders to the battery and had a regiment of volunteers and a set of drag-ropes with which to accomplish his mission. Finding the way blocked with trees, Hagner had to locate the engineers and borrow some of their axes. Hagner and Smith stumbled upon each other sometime between 3:00 A.M. and daybreak, and Smith delivered the axes. Before daylight, the engineers finished the battery and placed the guns. Because of the hard soil, the position

that the engineers prepared was not as elaborate as those at Vera Cruz-- it consisted only of a small *epaulment* (an expedient parapet) and level firing platforms.⁹

With the battery finished, Smith further split his company by having ten men report to Lee and an additional eight men, under Foster, work on opening a road for the light artillery around the northern foot of La Atalaya. Smith then took the remainder of the company and became part of Harney's attacking force.

Reconnaissance and Close Combat

Harney's position at La Atalaya was lower than the Mexican position on Cerro Gordo and the Americans could not clearly see the enemy's lines. Cerro Gordo has a relatively flat top and the Mexicans were defending some distance back from the crest. Harney moved his brigade forward, up the slope of Cerro Gordo, and stopped them short of the crest where the Mexicans could not see them. Here, Smith asked Harney for time to go forward and gather information on the enemy's defensive works. Harney agreed, and Smith later reported that the Mexicans were not more than fifty yards from friendly troops and that their fortifications were not well constructed and should not be considered an effective obstacle. After delivering his report to Harney, Smith told his engineers to put away their shovels and picks and pull out their muskets--they were now part of the attacking line.

About the same time that Smith made his report, some Mexicans spotted the waiting American line and opened fire. Harney had Smith take his men down the line to the left, in the direction of the fire,

and direct two of the left flank infantry companies to turn, and, on Harney's order, charge. With the engineer and infantry companies in position, Harney gave the order and the men sprang up and quickly closed the distance between the two lines. There was a brief, but vigorous, struggle between the two sides--a struggle that saw bayonets, swords, pistols, musket butts and fists. The location the Mexicans had occupied was strewn with quarry holes that gave them considerable cover. The Americans, however, routed them from the holes and chased them back to their own main defensive line, which gave way shortly thereafter under the remainder of Harney's assault. Towards the end of this battle, Americans captured the Mexican guns and turned them against their former owners, causing a very disorderly retreat.¹⁰

Concurrent with Harney's main attack, the brigades of Colonel Bennet Riley¹¹ and Brigadier General James Shields¹² moved around La Atalaya and tried to block Santa Anna's retreat from their positions near the city of Cerro Gordo. Shields attacked first with his three-hundred raw volunteers against Santa Anna's two-thousand Mexican cavalry and five field guns. The Mexicans repulsed the attack, and Shields himself was wounded, but the Mexican line collapsed when Riley's brigade joined in the attack on Shields' left. The Americans won; however, Riley and Shields failed to cut off the fleeing Mexicans, and many, including Santa Anna, escaped to later fight again.¹³

McClellan's Misery

While Smith's portion of Company A was supporting Twiggs' attack, McClellan's detachment was back to the east with Pillow's

supporting attack.¹⁴ McClellan had ten of the best soldiers in the company with him, but he was worried because Pillow's brigade consisted entirely of volunteers.¹⁵ While there was animosity between many of the regulars and volunteers, McClellan's was a severe case.¹⁶ He even wrote in his journal that, because he was with volunteers, he did not expect to make it through the battle. McClellan was also upset because he did not have a clear picture of the mission. He knew Pillow was going to attack, but he did not know where.

Early on 18 April, McClellan distributed engineer tools to his men (hatchets, axes and billhooks) as well as to the volunteers (axes, sap-forks, and billhooks). The brigade moved out along the National Highway and halted near the point where Twiggs' division had left the road to the north. Here, there were two paths off the road to the south. Pillow's engineer, Lieutenant Tower, had provided directions to McClellan and now instructed him to take the eastern-most of these paths when ordered to resume marching. Pillow later came by and told the engineers to take the western-most route, contrary to what Tower had said. This upset McClellan, who felt that Tower, as the senior engineer in the march, should have persuaded Pillow to take the eastern route.¹⁷ The eastern route was further from the enemy's position and was well protected by a masking ridge. The western route would bring the advancing friendly troops much closer to the enemy. It was on this western route that the detachment of engineers accompanied Pillow's brigade.

The ensuing movements were nearly as disorganized as McClellan had feared. In trying to position two of his regiments, the frustrated

Pillow began shouting at the top of his voice and was easily overheard by the nearby Mexicans. A Mexican bugle call and a barrage of musket fire followed his outburst. With the incoming fire the situation became more confused. McClellan pressed Pillow for instructions, as he had yet received no orders. While talking to McClellan, Pillow was wounded, and his aide escorted him to the rear. McClellan found the 2nd Tennessee Regiment "utterly broken and dispersed" and looked for the Pennsylvania Regiment, which was supposed to provide support for the Tennesseans. At first he could not locate the Pennsylvania unit as they "had kept so well in reserve that they could not be found." By the time McClellan joined up with the other regiments, the shooting had stopped.

The plan now, as McClellan understood it, was for the 2nd Tennessee to attack the enemy's works, a mission which McClellan thought would require the help of regulars. He found Pillow and presented his case. Pillow agreed and instructed McClellan to search for General Scott and ask for any regular forces that might be available. McClellan found Scott near the rear of Worth's division and passed on Pillow's request. Scott answered McClellan, stating that he had no regulars to spare, but that the battle should be nearly over anyway. Scott did not seem interested in the state of confusion that existed in Pillow's brigade and gave little thought to his future movements, saying that "General Pillow might attack again, or not, just as he pleased."¹⁸

Upon McClellan's return to Pillow's brigade, he met Colonel Francis M. Wynkoop,¹⁹ the commander of the 1st Pennsylvania Volunteers. Wynkoop reported seeing white flags flying over the Mexican works, but was unsure of what they meant. Wynkoop asked McClellan to give him an

order to charge, and said that he might charge anyway, with or without orders. McClellan told the disappointed Wynkoop that he could not give him the requested order, and, in any case, the white flags were a signal that the Mexicans were surrendering. McClellan then returned to his detachment of engineers and moved them to rejoin the company, which they did at Santa Anna's *hacienda Encero* on 18 April.

Although many of Santa Anna's troops escaped, Cerro Gordo was a victory for Scott. The engineers' role in that victory was significant: building a hasty battery, conducting reconnaissance, leading infantry units and joining in the close fighting. Company A earned a second silver campaign band for its participation at the battle of the "fat mountain."

Jalapa, Puebla, and Expired Conscriptions

From Encero, the company marched at the head of Twiggs' division to Jalapa. McClellan proudly reported that the engineers were the first Americans to set foot in Jalapa, although he interestingly refers to his soldiers as infantry. The march to Jalapa and the engineers' stay there were uneventful, with two exceptions. The company was setting up camp within the town, when a loud disturbance drew their attention. They soon discovered that Scott had paroled the Mexicans he had captured at Cerro Gordo, and they were now entering the city, presumably on their way to Puebla or Mexico City. Scott felt his army had neither the food nor the manpower to keep the prisoners, and thus released them, without their weapons, on the agreement that they were not to fight again. Now these parolees marched westward, with the

American soldiers who had just fought so hard to capture them looking on in disbelief.²⁰

The other significant event at Jalapa was that the engineer company's transportation problems came to an end. Scott's Chief Quartermaster furnished Smith with "the finest mule teams in the army." Obviously, this was good news to the soldiers of the company who had worked so laboriously to move their trains forward.²¹

Despite seeing the returned prisoners at Jalapa, confidence ran high among the Americans after Cerro Gordo. Scott's smaller force had decisively defeated Santa Anna's larger army. In a letter to General Taylor, Scott reported that the victory was so thorough that "Mexico no longer has an army."²² In reality, Santa Anna may have been on the run, but he was not finished.

On 20 April, Worth's division led Scott's army from Jalapa to Puebla, and Company A led Worth's division. The column stopped for a few days rest at the small town of Perote, a little over a fourth of the way from Jalapa to Puebla (depicted in Figure 11). At Perote, on 25 April, Smith arranged to have First Sergeant David H. Hastings²³ transferred to the engineer company from Company K, Third Artillery. Prior to this, Company A had only an acting first sergeant, Stephen C. Clarke. Although an Irish immigrant in a mostly native-born unit, Hastings would remain the company first sergeant until the war's end. Smith felt that he now had "one of the best sergeants in the army" as their top non-commissioned officer.²⁴

At Jalapa, the conscription on nearly all of Scott's volunteers expired and proved more damaging to Scott's army than any Mexican fires.

When Congress hastily passed the War Bill in May 1846, they had given volunteers two choices: sign-up for one year or sign-up for the duration of the war. Naturally, most signed up for one-year, an obligation that was now over. Thus, on 6 May 1847, seven regiments of volunteers marched out of Jalapa under Patterson, leaving Scott with just over seven-thousand men. Scott, nevertheless, felt confident and turned his attention westward toward Mexico City.²⁵

The engineer company remained under Worth's control until it reported to General Headquarters at Puebla on 15 May. The sappers, along with the rest of the army, would remain at Puebla for three months, a delay Scott did not want because it gave Santa Anna time to reassemble his scattered forces. However, the departure of the volunteers gave him little choice. While Scott waited for replacements, the troops, including the engineers, drilled. Expecting a siege in the near future, Smith drilled his soldiers in the "School of the Miner." The engineers built fortifications at Puebla, practiced loop-holing walls (placing firing slits for small arms), and learned how to organize and construct defenses for a town. It was at Puebla that the engineer soldiers learned of the death of their commander.²⁶

New troops began arriving at Puebla in July 1847. Pillow, now a major general, arrived on 8 July with the first reinforcements, nearly 4,500 men. By August, Scott's army had grown to 14,000 men. Scott divided his forces into four divisions (previously there had been three) under Major Generals Worth, Twiggs, Pillow, and John A. Quitman.²⁷ Pillow's division was the only one considered to be "volunteer,"

although Quitman's division did have volunteer regiments. In this organization, the engineer company was with Twiggs.²⁸

The Approach to the Valley of Mexico

Scott now faced a choice as to how to approach Mexico City. The National Highway entered the city from the east and provided the most direct route, as shown in Figure 13. However, this direct route also passed by the well-defended El Peñón, a fortress with about seven-thousand Mexican soldiers and thirty cannon. A more indirect route, which approached the city from the south, might be available. This southern route would take Scott's army around Lake Chalco and Lake Xochimilco and across the Churubusco River before entering Mexico City. Scott was not sure about the suitability of this route or the strength of the defenses at El Peñón, and he again turned to his engineers to provide him with information.²⁹

While Scott's army rested and trained at Puebla, two engineer officers, Lee and Major William Turnbull³⁰ (the Chief Topographic Engineer), conducted a reconnaissance of the approaches to Mexico City. They determined that the Mexicans were heavily defending El Peñón and that there was a good chance of finding a southern route. Scott, upon hearing the engineers' report, decided to take the southern approach and flank Santa Anna. He planned to have Twiggs lead out of Puebla and threaten El Peñón, thus deceiving Santa Anna as to the location of his main attack. Worth, Pillow and Quitman would move south off the National Highway, swing around the lakes and arrive at San Agustín. This approach was through some extremely difficult terrain: lava fields

called *pedregals* that cut horses' hooves and soldiers' feet alike and mule-paths that criss-crossed the rocks and were difficult to find and follow. The Mexicans would certainly not expect an attack from this direction. The deception worked, as it was 14 August (seven days after Twiggs' moved) before Santa Anna had reports of large troop movements to the south, and 17 August before he acknowledged the veracity of those reports and took action.³¹

Engineers Lead the Way

On 7 August 1847, Twiggs' division advanced on El Peñón with the engineers in the lead. The company remained with Twiggs until Worth moved off to the south, at which time it took up the lead for his division. Worth moved south and west around Lake Chalco, further west around Lake Xochimilco, and finally north toward San Agustín.

The road to the north ran between the lake and the *pedregal* and was nearly impassable in places. At several locations the *pedregal* came right up to the water's edge and formed cliff-like overhangs above the road. From these heights the Mexicans had rolled masses of stone on the road, and in other spots the Mexicans had cut ditches across the road. At these obstacles the Mexicans began to fire at the stalled American column.

Worth had Colonel C. F. Smith's³² Light Battalion drive off the enemy snipers and instructed the engineers to make the road passable. Lieutenant Smith immediately asked for five-hundred men to do the labor, which Worth gave him from his lead brigade. The officers and men of the engineer company supervised the work party and they completed their work

in a few hours. The road was still rough however, requiring drag-ropes and shoulder muscles to get wagons through the worst spots.³³

By 18 August, Worth had progressed as far north as San Augustin. About six-hundred yards to the north, at San Antonio, the Mexicans had erected a fortification across the road--a fortification that appeared to be heavily defended. Worth held up here temporarily and spent the afternoon of the 18th with the engineers in reconnoitering that position. The results of the reconnaissance were not good news for Worth: the fort was well defended and any bypass through the *pedregal* was nearly impossible.

An Earned Reputation

As Worth moved up the eastern side of the *pedregal*, Scott had Lee take an infantry regiment and two companies of dragoons to see if a route existed around the western side of the *pedregal*. Lee made it as far as Mount Zacatepec, where they met Mexican snipers. Lee knew that the Mexicans had to have come from the west and thus surmised that a route existed, and returned to report to Scott. After learning of Worth's situation in the east and hearing Lee's report, Scott told Worth to halt and had Smith bring the engineer company back to San Augustin. The main effort would now be to the west of the *pedregal*.

Smith received the order to move back south about 3:00 A.M. on the 19th. On the return trip, he and McClellan overheard a conversation between two of Worth's soldiers that indicates the reputation that the engineer company had earned. Just after dawn, Smith heard one say "We are not going to fight today: Twiggs' division is going to fight." When

the other soldier asked how he knew this, the first soldier pointed to the engineers and told the second that they were going back to take a different route with Twiggs' division--thus Worth's division would not be fighting that day. McClellan thought the comment a terrific compliment: "The private soldiers of this army understand that we are sent where the hardest work and hardest fighting are to be done--and always at the head of the leading division."³⁴

The company reached San Agustín just after sunrise on the 19th and reported to Lee for instructions. Lee and Smith divided the company into five sections, each under the control of an engineer officer, and each given a different portion of the road to improve. The detachments from the company spent most of the 19th supervising some five-hundred men from Pillow's division in road repairs. Twiggs' division provided protection for the work party. Under Lee's supervision, the five detachments slowly hacked their way across the "raging sea of molten rock."³⁵

The Battle of Contreras

While the engineers and labor parties worked on the 19th, units in Twiggs' and Pillow's divisions were on the move. The Mexicans established more of a defense than the Americans expected at Padierna (mistakenly called Contreras, the more common name for the next-day's battle)--Scott expected Twiggs to "brush the enemy away." These dispositions are depicted in Figure 14. Since the situation did not seem critical, Scott himself remained back at San Agustín and left the

advance to his subordinates. Events over the next twenty-four hours nearly ended Scott's string of successes.³⁶

With most of the roadwork finished early in the afternoon on the 19th, Twiggs moved forward, towards Padierna, and came under fire from that village.³⁷ Twiggs responded to the twenty-two Mexican guns with artillery of his own, under Captain John Magruder.³⁸ Initially Magruder held, but was eventually forced to withdraw. Pillow, whom Scott had placed in charge of the overall attack, arrived in the midst of this duel and decided to cut the Mexicans off by sending Bennet Riley's brigade to San Gerónimo. Riley easily made San Gerónimo; however, Pillow then realized that Riley himself was exposed and in danger. He then ordered Brigadier General George Cadwalader³⁹ and Colonel George W. Morgan⁴⁰ to reinforce Riley. Meanwhile, Magruder withdrew his battery, and the Mexicans at Padierna believed they had won a major victory. With the three brigades at San Gerónimo, the Americans began to scout the rear of the Mexican position at Padierna. The Americans had another concern now, however, as they looked to the north and saw what they later learned was Santa Anna's main body approaching.

This approaching Mexican force was cause for concern because the three American brigades were caught in the middle, with little chance of escape due to the broken terrain. The only force left was Brigadier General Persifor F. Smith's⁴¹ brigade that was in reserve. Smith saw that Riley, Cadwalader and Morgan were in trouble and knew his was the only rescue force available. Smith, however, could not find Twiggs, Pillow or Scott to give him orders to move. He then took the initiative and moved his brigade into a defensive position near the rear

of Morgan's brigade. He initially planned to attack the Mexican post at Padierna, but found the three American brigades in such disarray that he postponed his attack until 3:00 A.M. on the 20th.

Persifor Smith needed to tell Scott about his plan to attack and to ask him for a supporting attack against Padierna that would keep the enemy's attention. Lee volunteered to make the long dangerous trip back through the *pedregal* to find Scott, which he did, arriving by 11:00 P.M. on the 19th. Scott was pleased to learn of Smith's situation and had Twiggs and Lee round up forces for the asked-for feint.

Santa Anna, for reasons unknown, did his part to aid the American's plan. When the opportunity was ripe and three American brigades were disorganized and trapped between two Mexican forces, he failed to attack. In fact, Santa Anna withdrew to the north after he had made it as far south as San Angel. The Mexican fort at Padierna learned of Santa Anna's withdrawal at dawn on the 20th. This dealt a severe blow to their morale, and some men deserted even before the American attack.

The Engineers at Contreras

While this maneuvering was going on, G. W. Smith tried to gather the scattered engineer company and prepare them for the upcoming battle.⁴² Lee told him to halt the company and to move forward and examine the road to Padierna, while Lee examined the road to San Gerónimo. Smith had moved about four-hundred yards forward when he heard firing to his front, and immediately met Captain John McClellan⁴³ of the topographic engineers and Lieutenant McClellan of the engineer

company. They had encountered a strong Mexican picket where the junior McClellan had his horse shot out from under him. The engineers reported this picket to Twiggs, who then moved a regiment forward. When Twiggs' division came under fire from Padierna, it was Lee who sent back for Magruder's battery to return fire. Lieutenant Foster of the engineer company conducted the battery forward and McClellan placed it in position. Smith, meanwhile, had rejoined the company and found them shelter near the rear of Magruder's battery.

G. W. Smith met Persifor Smith before he took his brigade to rescue Riley and the others. With Lee present, Smith asked the general to allow the engineer company to accompany his brigade in the upcoming attack. The senior Smith agreed and directed the engineers to take up the lead of his column. This they did, and thus moved with Persifor Smith's brigade into the dangerous position between the two Mexican forces. At their new location, General Smith told Lieutenant Smith to take the engineer company, reconnoiter the village of San Gerónimo and try to locate Riley's brigade. The engineers did not find Riley, but they were able to see Santa Anna's force advancing from the north, estimated by Smith to be about ten-thousand men. Upon returning to Persifor Smith's defensive line, Smith learned that the engineers would be on the right of the rifles during the following morning's attack. McClellan, who had been with Magruder's battery, rejoined the company at that time, and Foster took a small detachment and did not return until after the fighting of the following morning.

Leading the Infantry

Early on the morning of the 20th, G. W. Smith found that Cadwalader had lost part of his brigade, and that this caused a confusion among the other units staging for the upcoming attack. Cadwalader asked Smith (through Major Dimmick, in temporary command of Smith's brigade) to turn over the engineer company to McClellan and to move forward and take charge of the troops that had lost their way. He did this, and soon the troops were in a sheltered position waiting for the attack. Smith wanted to return to his company, but first had to report to Persifor Smith for instructions for the attack. The engineer company was to lead Smith's Rifle Regiment up a steep slope and attack the enemy's position in the flank or rear at the same time that Riley attacked from the front. Persifor Smith pointed out his desired route and told Smith to wait until after Riley attacked before engaging and pursuing the detachment. At last, Smith returned to his company.

The engineer company led the Rifle Regiment as directed and found the Mexicans' attention completely held by Riley's advance. They moved to within fifty yards of the enemy fort and the rifles had just begun to deploy into a firing line when Riley attacked. The engineer company and the Rifle Regiment then rose, fired into the rear of the enemy, and rushed their position. Smith reported "That fire was very destructive. The Mexicans were astounded." The enemy quickly retreated.

The entire assault lasted seventeen minutes. Many of the Mexicans retreated, and were pursued, to the north. Beauregard was in charge of the movements of Smith's brigade for the battle and directed a

short pause to regroup. Twiggs arrived shortly thereafter and resumed the pursuit. Meanwhile, Foster and his detachment of engineers led the Ninth and Twelfth Infantry in an attack into the flank of the retreating column. First Sergeant Hastings was wounded in the fighting (Smith would later recommend him for a brevet commission for his gallantry). Artificer Nathan T. Reed of the engineer company shot the color bearer of the Mexican Twelfth Regiment of Artillery and captured their flag. For its actions at the Battle of Contreras, Company A added a third silver band to its guidon.

The Missed Reconnaissance: Churubusco

Enroute to Churubusco, the engineers had what Smith referred to as an "unimportant skirmish" at San Angel. Smith, and his accompanying Rifle Regiment, were eager to continue the pursuit, but he first wanted to examine Churubusco from the vantage point of a tall building in San Angel. Instead, General Smith recalled them and sent them forward to Coyoacán. Smith was upset, as he believed that the information he could have gained with his field glass might save lives in the upcoming battle at Churubusco.⁴⁴

Santa Anna, his army now in full retreat toward the fortified capital, put up one last defense before the city. The roads south from Mexico City crossed the Churubusco River over several bridges, as shown in Figure 15. These bridges, combined with the San Mateo convent and a *tête-de-pont*, made a formidable defensive line. Santa Anna gave the defenders the standard "hold at all costs" instructions, but that probably was not necessary. In addition to the Mexican defenders at

Churubusco there were two companies of the American San Patricio Battalion--over two-hundred men who had deserted Taylor back at Matamoros. They served both as infantry and cannoniers on the Mexican side in the defense of the convent. They needed little motivation: they faced the gallows if captured.⁴⁵

Somewhat out of character, Scott gave quick pursuit of the fleeing enemy without completing a careful reconnaissance. Worth moved back to the east side of the *pedregal*, where he had stopped two days earlier. Scott told him to wait there until Pillow came around from the north and opened the road. Pillow and Worth would then pursue the fleeing enemy north together toward the *tête-de-pont*. In the center Twiggs would attack the convent while Shields and Brigadier General Franklin Pierce⁴⁶ would cross the bridge north of Coyoacán and attack towards Portales.⁴⁷

Engineers at Churubusco

Initially, Company A moved on Pillow's route toward San Antonio. Worth did not wait for Pillow to open the road, however, and encircled the fortifications there with one of his own regiments. As Worth was now moving north on his own, Pillow no longer required the engineers. The engineer company instead lead Twiggs' division up the middle toward the convent. With the company in place at the head of the column, Twiggs had two engineers, McClellan and Lieutenant Stevens, move forward to reconnoiter, each on a different road. Both officers soon reported that the Mexicans had built a considerable defense at the convent, which was less than seven-hundred yards from Twiggs' column.

In front of the convent a Mexican battery was ready to fire and the roof was swarming with muskets.

Twiggs did not expect this strong of a defense and ordered more reconnaissance. Smith went further forward, taking the company as escort. At about five-hundred yards from the battery Smith found enemy troops on his right, left and in front. Moving closer, to about three-hundred yards, Smith captured a Mexican lancer. He then decided that his engineer company was an insufficient escort, delivered the prisoner to Twiggs and requested two additional companies of infantry. Upon his return to the company, Smith found the engineers engaged in a firefight with the Mexican defenders.

Artillery Coming and Going

Lieutenant William T. H. Brooks,⁴⁸ Twiggs' Adjutant General, informed Smith that Lee and the Rifle Regiment were also scouting ahead, but further to the right (east) from where the engineer company was. Lee's party was also engaged with the forces at the convent and, in Smith's opinion, faced a larger force. Smith and the other lieutenants present decided to call artillery forward. They reasoned that a single gun firing a few well-placed rounds of grape-shot should disperse the infantry on the convent roof and thus relieve both reconnaissance missions. Smith found shelter for the company while Stevens went to Twiggs with the request for artillery. Smith began to deeply regret not having made the long-range reconnaissance from San Angel as he had wanted earlier in the day.

While Stevens was gone, the enemy's fire increased and "was becoming troublesome." The additional escort of two companies never came forward. Smith, after sheltering the company, attempted to move further forward when the First Artillery Regiment came up to his position. Captain Martin J. Burke,⁴⁹ the officer leading the artillery unit, said that his orders were to support Lee and the rifles. Smith pointed out where he thought the Rifle Regiment to be and recommended that the artillery regiment move further away from the convent before moving east. Burke was adamant that they "were ordered to move by that road"⁵⁰ and then filed by, as close as one hundred and fifty yards from the convent. This movement drew the heaviest enemy fire yet, and the determined Captain Burke did not survive the encounter. Along with the First Artillery, Captain Francis Taylor⁵¹ brought his light artillery forward. This battery was the response to the single gun which Stevens had requested.

Smith, meanwhile, decided to continue his reconnaissance mission and ordered the company formed. The First Artillery had moved in an east-northeasterly direction, closer to the enemy battery, and Smith saw that there was little utility in going that direction. He instead took the company due east on the road leading from Coyoacán. Smith had the men spread out and use available cover as they moved. The sappers continued in this manner about two-hundred yards. Smith halted the company and had the men take shelter in a nearby ditch. This was a fortunate move as Taylor's battery soon opened fire upon the convent and the engineers were midway between the American and Mexican batteries. Smith had expected a single gun and "the firing of Taylor's battery

through the engineer company, in the corn-field, was a surprise to [him]."⁵²

With the company relatively secure in the ditch, Smith and Foster made their way to a better vantage point. Smith determined that the right flank of the convent was much stronger than the left and that Twiggs' entire command should attack from the left (west). Smith sent Foster to deliver this report to Twiggs. He then returned to the company, moved them to a more secure position and joined Stevens and General Smith. Smith and the engineers remained at that location until the battle was over.⁵³

Although Churubusco was a haphazard battle from the American's standpoint, due to poor reconnaissance before the fighting began, and although the losses were not light, the Americans won. Worth's objective, the *tête-de-pont*, was the first to fall. Worth then turned west and moved on the convent, which fell twenty minutes later, after two and a half hours of fighting. The deserters of the San Patricio Battalion took heavy losses: 35 men killed, some 85 captured and the remainder scattered.⁵⁴ Worth then continued his charge north across the Churubusco River just as Shields was finishing a heavy fight there. Worth attempted to pursue the fleeing Mexicans, but, because of the restrictions of the waterways, was unsuccessful. The 20th of August had been a long, bloody day and Mexico City would have to wait.⁵⁵ For its participation in the Battle of Churubusco, the engineer company added a fourth silver campaign band to its guidon.

A Shaky Truce

The battles at Contreras and Churubusco inflicted heavy losses on Santa Anna's army, but the Mexican leader was not ready to quit. He needed time, however, to reorganize and strengthen the defenses of Mexico City. Santa Anna worked through diplomatic channels and, on 24 August 1847, arranged a truce with Scott. Many of the American officers were critical of Scott for accepting the truce when Scott himself felt he could easily take the city. However, Scott rationalized that if he did not make an honest effort at a peace now, he might jeopardize a more permanent peace later.

The terms of the truce prevented either side from engaging in military operations such as improving fortifications or interfering with the other's supply lines. The Mexicans had no intention of keeping their part of the bargain. Scott seemed to know this ahead of time and did little to object when he learned of Mexican violations. His officers further criticized him for not enforcing the terms of the agreement. The failure of permanent peace negotiations brought the truce to an end on 6 September. Nicholas P. Trist, President Polk's emissary to Mexico, could not agree with the Mexican commissioners on the issue of the national boundary--one of the key issues that started the war in the first place. On 2 September, Trist issued the Mexican delegation an ultimatum, at which point Santa Anna began overtly violating the truce by erecting stronger fortifications. This time Scott responded. He gave Santa Anna until noon the next day to comply with the truce or Scott would consider hostilities re-initiated.⁵⁶

Throughout the period of the truce, the engineer company camped at San Angel. On 7 September they moved forward, along with the general engineer train of the army, to Tacubaya, about a mile south of the enemy positions at Chapultapec.⁵⁷

The Forlorn Hope: Molino del Rey

Now that the war was back on, Scott intended to conduct a full reconnaissance of the enemy positions, his army still smarting from the hasty actions on 20 August. The land south of Mexico City was marshy and crossed by several causeways (roads above the wet ground). Since soldiers could not easily cross the wet fields and marshes (the artillery could not cross at all), Scott had to merely choose which approach to use. His chief decision was whether to first take Chapultapec or to bypass this stronghold and go directly for the city. This decision would wait until the reconnaissance was complete.

Scott's soldiers still needed a few days to prepare for the attack, as they had generally abided by the terms of the truce. Scott soon learned of a strong Mexican force at the Molino del Rey (King's Mill), shown in Figure 16. Rumors told that the mill had once been a foundry used to produce cannon and now housed extensive stores of powder. The Molino del Rey's location also posed a threat: it was just over a mile from Scott's headquarters at Tacubaya. Scott called for a "minor action to take the Molino." He believed this would not interrupt the majority of his troops' preparations for the eventual main attack.

Scott reinforced Worth's division with Cadwalader's brigade and nearly three-hundred dragoons under Major Edwin V. Sumner,⁵⁸ and gave

them the mission to attack Molino del Rey. Worth organized a storming party of five-hundred soldiers under Major George Wright.⁵⁹ It is this storming party, known as the "forlorn hope," which would make the assault against the defended works. The forlorn hope was not an integral unit, but was formed from selected soldiers from various units. This particular storming party included Lieutenant Foster and ten soldiers from Company A.⁶⁰

Santa Anna became aware of Worth's plan and moved five brigades, along with artillery, into the mill, and positioned four-thousand cavalry troops to the west. For unknown reasons, Santa Anna did not appoint one commander to integrate the overall defense. In spite of Mexican mistakes, the fighting was still fierce, and Scott got much more than the small skirmish he had expected.

The storming party rushed the mill both under friendly artillery support and in the face of enemy fire. Wright's group quickly took the outer grounds and turned the enemy's guns on them as they fled. The fleeing Mexicans soon realized that Wright's group was small, compared to their forces, and turned to fight. Eleven of Wright's fourteen officers, including Foster, were shot down. With Wright's force broken, members of the "forlorn hope" that could still move pulled back and returned to their original units. Only Brigadier General John Garland's⁶¹ brigade attacking from the west, with supporting artillery, prevented the complete destruction of Wright's party. After the surviving members of the storming party pulled back, the surrounding Americans watched in horror as Mexicans came out of the mill and murdered many of the wounded soldiers. Foster survived but was badly

injured and would not see further action. Worth eventually took Molino del Rey as well as the nearby Casa Mata, but not without a cost. The entire battle took two hours and left 116 dead and 671 wounded, including many key leaders. A fifth silver campaign band was added to the guidon of Company A for its action at Molino del Rey.⁶²

A Council of War: Chapultapec

After Scott watched the battle at Molino del Rey, he again sent his engineers out to reconnoiter the approaches to the city. On 11 September, he held a council of war in which he listened to arguments as to whether to take Chapultapec before moving on the capital city. Most of those assembled were in favor of bypassing the fortress and going straight for the city. After hearing from the generals, Scott called upon Lieutenant Beauregard, one of the junior officers (if not the junior officer) present, to give his opinion. Beauregard argued that the best course of action was to feint toward the city and then storm Chapultapec. His justification for this plan was strong enough that one of the conferees changed his mind to now favor the Chapultapec attack. Scott decided to assault the fortress first--the plan he favored all along.

Santa Anna had a much larger army than Scott, but he did not know from which direction the attack would come. Thus, he spread his forces out among the several gates to the city (*garitas*) and the fortress, Chapultapec. To keep Santa Anna guessing, Quitman and Pillow made a daylight move toward the southern approaches to the city. After dark, both divisions pulled back and took their positions near the

castle. Pillow moved to Molino del Rey and would attack from the west. Quitman moved to Tacubaya and would attack from the southeast. Worth's and Twiggs' divisions would follow, with Twiggs demonstrating at Piedad, just south of the city. Scott, ever the optimist, hoped to reduce Chapultapec with artillery fire alone. He even had visions of the city surrendering without the bloodshed of an assault. His hopes did not materialize, and the Americans soon had another tough fight on their hands.

Smith and the engineers supervised the construction of the firing batteries that Scott expected would win the battle. The work started on 11 September and continued through to the night of the 12th, the eve of the attack. Chapultapec and its surrounding grounds are depicted in Figure 17. Smith took charge of constructing Battery No. 1, which straddled the Tacubaya road directly south of the fortress. McClellan supervised Battery No. 2, southwest of the fortress. After dark on the 12th, Smith recalled the work parties and the engineers distributed tools to the two storming parties (more "forlorn hopes") for the next morning's attack.⁶³

The castle was not as formidable as it appeared--its garrison was only two-hundred sixty soldiers, including Mexican Military College cadets who insisted on remaining. Santa Anna placed an additional six-hundred troops around the walls of Chapultapec. At 7:30 A.M. the assault began with an artillery barrage. The storming parties climbed the ladders that the engineers had provided and swept through the castle. The Americans, with the memories of the Mexican atrocities earlier at Molino del Rey still vivid in their minds, were unrelenting

in their attack. By 9:30 A.M. the Stars and Stripes flew above the fortress. The engineer company was awarded a sixth silver band for its part in the storming of Chapultapec and subsequent actions in the capture of Mexico City.⁶⁴

Sappers and Miners: Garita de San Cosme

With the castle in American hands, Scott turned his attention toward the city. Worth moved north to the Garita de San Cosme, and the engineer company joined his division on the causeway about a half-mile from the gate. Quitman moved along the southern approach to the Garita de Belen.⁶⁵ Although most of the day's fighting was over by this point, the engineers' work had just begun.

Worth instructed Smith to reconnoiter forward to the city gate, but cautioned him to be careful.⁶⁶ Worth was still sore from the losses at Molino del Rey and added: "There have been too many valuable lives, of officers and men, lost recently in my division, for nothing." The "nothing" Worth referred to was what he felt the American victory at Molino del Rey had gained them.

With this caution in mind, Smith developed a novel approach for taking the gate. At the gate was a well-positioned battery. On either side of the causeway leading up to the gate was a continuous line of houses. About forty yards from the battery was a three-story, flat-roofed building. Smith proposed that his "miners" enter the houses, break through the walls, and advance house-by-house to the tall building. They would then ascend to the roof and fire muskets at the battery and disperse the artillerymen. Worth approved of the plan and

told Smith that Brigadier General Newman S. Clarke's⁶⁷ brigade would provide any needed assistance.

The engineers progressed just as Smith had planned, using crow-bars and picks to break through the succession of houses that covered their approach. The engineers' musket fire completely disrupted the Mexican troops at the gate, and they quickly abandoned their guns. The engineers themselves then became the targets as another roof-top force, this one Mexican, took them under fire. Smith returned fire, drove the Mexicans from their position and sent a portion of the company to give chase. This distraction allowed the Mexican troops to re-occupy the battery at the gate. Garland's brigade had been moving toward the gate when the re-manned guns opened on them. One of Garland's lieutenants, Ulysses S. Grant,⁶⁸ hauled a mountain howitzer into the tower of the San Cosme church and this gun "annoyed the enemy considerably."⁶⁹ The house-by-house assault teams, now composed of infantry and artillery troops, progressed down both sides of the street and emerged simultaneously in front of the gate and the fleeing Mexicans.

The Last Step: Mexico City

With the gate under Worth's control, the engineers pushed forward, several hundred yards at a time. The city's aqueduct ran down the center of the street and its arches provided cover for the soldiers as they advanced. They continued until they came to within one hundred and fifty yards of a large, fortified convent. Smith saw Mexican artillery on the street beyond the convent, halted the company and

reported to Worth. Smith had found two sheltered areas on his approach, and Worth sent two brigades forward, one to each of these positions.

After dark, Smith and McClellan reported to Worth and asked permission to exploit their success by continuing the advance. Worth instead ordered all operations suspended for the night. The lieutenants then reminded him about the forces at the convent and suggested that they might give Worth trouble in the morning. Smith asked for a detachment of five-hundred men to accompany his engineer company and sneak by the convent to a strong position beyond it. With the enemy at the convent thus trapped, Smith felt that they would abandon their defense before morning. Instead of approving Smith's plan, Worth ordered the officers to remain at his headquarters until 3:00 A.M., thus preventing their independent action.

Although this arrangement left the engineer company near the front without an officer for the remainder of the night, Worth would not release either of the lieutenants. Smith and McClellan accepted their fate and did what most soldiers would do in a similar situation--they slept. About 1:00 A.M. one of Worth's aides woke the engineer officers and they learned that their plan to trap the garrison at the convent was unnecessary. The Mexicans had evacuated the city just before midnight and had offered surrender--the Mexican capital now belonged to the Americans.

The work for the engineers was not yet over, however. Worth had Smith and his company sweep the route ahead, checking every large building and possible enemy position. They began about 2:00 A.M. in what amounted to a house-by-house search. While, an operation as this

would normally be slow, the now-cautious Worth advised that they were to move with even greater care. By daylight they had only progressed about one-half mile, even though they found no enemy. With the sun coming up, Smith climbed a church steeple near the Alameda and saw that the Mexicans had deserted the Citadel, near the Garita de Belen. This citadel, on 13 September, had stopped Quitman's advance. McClellan let Smith know that the Alameda was also unoccupied, and Smith in turn, notified Worth that his entire division could move forward. The engineer company resumed its advance towards the National Palace.

They soon had to counter-march, however, and move back to the Alameda. Smith did not know it at the time, but the directions to stop came from Scott. The senior general was preparing to make his triumphant entrance into the city, and Quitman was to be the one to take the National Palace.

Snipers and Lawless Bands

One final story, that of the sniper, completes the combat actions of the engineer company in the capture of Mexico City. As Scott entered the city, Colonel Garland was hit by a shot fired from a narrow street opposite the head of the division. Worth immediately sent the engineer company after the sniper. His instructions were to "go into the lane, find the man who had fired the shot, and hang him."⁷⁰

The engineers quickly found a suspect and placed a noose around his neck, but Smith would not give the order to hang him, as he had no positive proof. Smith brought the prisoner back to Worth, reported the circumstances and asked for instructions. Worth was upset at Smith

because the suspect was still alive. Colonel James Duncan,⁷¹ Worth's artilleryman, backed Smith and pointed out that the engineers were ready to hang the prisoner on Worth's order. Engineer soldiers passed the rope over a nearby lamppost, but the execution order never came.

More shooting soon drew the Americans' attention again. Lawless bands were now roaming the city and firing from numerous rooftops. Worth later learned that Santa Anna, upon leaving the city, had opened the prison gates and released about thirty-thousand convicts. He placed them throughout the city with the hope that they could incite a revolt. Scott's army spent the remainder of 14 September chasing down these released criminals. The engineer company remained with Worth throughout the day. Interestingly, they camped for the night in a private house near the lamppost to which they had left the suspected sniper tethered. The man was gone and nothing more was said of the incident.⁷² There were no further significant conflicts involving the engineers.

New Uniforms and Old Tools

The soldiers' uniforms had taken a beating over the previous year.⁷³ Smith procured new material and the services of a tailor and outfitted all of his soldiers with new uniforms over the next six weeks. Drills were suspended for about a month. During this time, the soldiers had no duties other than routine guard duty and assisting the officers in their surveys. The engineer officers made maps and drawings of the recent battlefields, finishing near the end of October. Smith then resumed infantry drills.

Scott's occupation of Mexico City is literally a text-book example of how to administer a civil-military government of occupation. By working through local leaders and holding soldiers to high discipline standards, the Americans were able to live among the Mexican population with minimal difficulties.

After the signing of the Treaty of Guadalupe Hidalgo, but before departing for the United States, the engineers sold their tools. In most cases the tools brought a higher price than when purchased in the United States. Smith turned command over to McClellan on 2 February 1848, the day the treaty was signed.

The Journey Home

The company, under McClellan, marched to Vera Cruz on 28 May 1848. From Vera Cruz they sailed by steamer to New York City and arrived at West Point, New York, on 22 June. Captain George W. Cullum, one of the engineer officers that had helped recruit sappers two years earlier, was waiting and took command of the company. Smith arrived at West Point in July after settling the estate of the late Captain Swift. He asked for and received relief from duties with the engineer company. An act of Congress authorized the discharge of most of the enlisted soldiers, reducing the company to little more than a detachment of recruits.

On the day Mexico City fell, Smith caught McClellan reminiscing on recent events. Smith said to McClellan: "A penny for your thoughts." To which McClellan responded:

"I have been making a 'general review' of what we have gone through since we left West Point, one year ago this month, bound for the 'Halls of the Montezumas'; have been again on the Rio Grande, that grave-yard of our forces; have gone over the road from Matamoros to Victoria and Tampico, where we had so much hard work; went through the siege of Vera Cruz, where we were left out in the cold during the ceremonies of surrender, and later, had to make our way as best we could, with the engineer train through the horrid sand; glanced at Cerro Gordo, where it was my misfortune to be with General Pillow's 'whipped community;' stopped again with our friends, the Monks, in the convent at Puebla; crossed over the mountains; came by way of San Antonio, Contreras, Churubusco, Chapultapec and the San Cosme Garita, into this city. Here we are--the deed is done--I am glad no one can say 'poor Mac' over me."⁷⁴

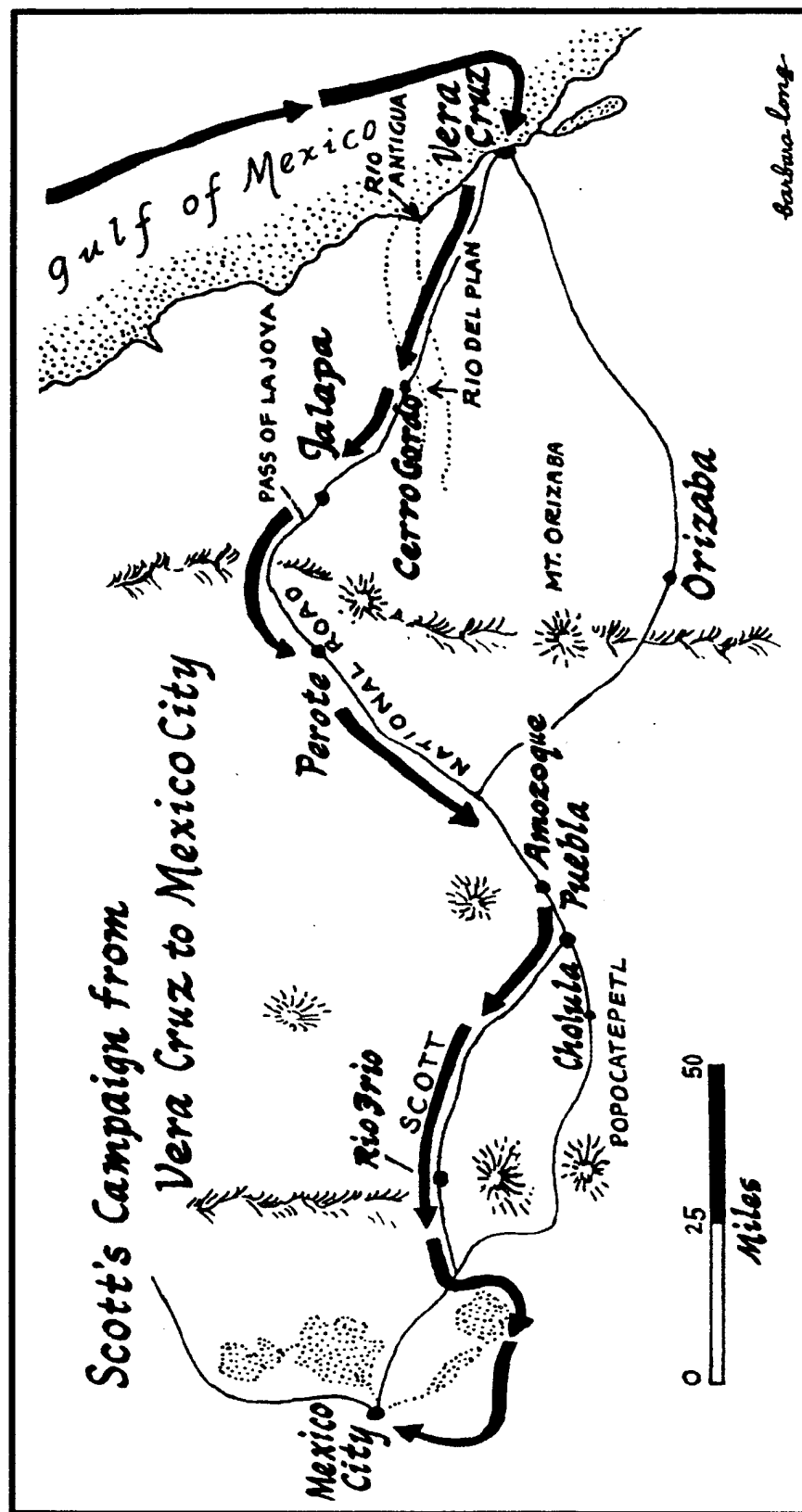


Figure 11. Scott's Campaign from Vera Cruz to Mexico City. Reprinted from Charles L. Dufour, *The Mexican War, A Compact History, 1846-1848*, (New York: Hawthorn Books, Inc. 1968), 214.

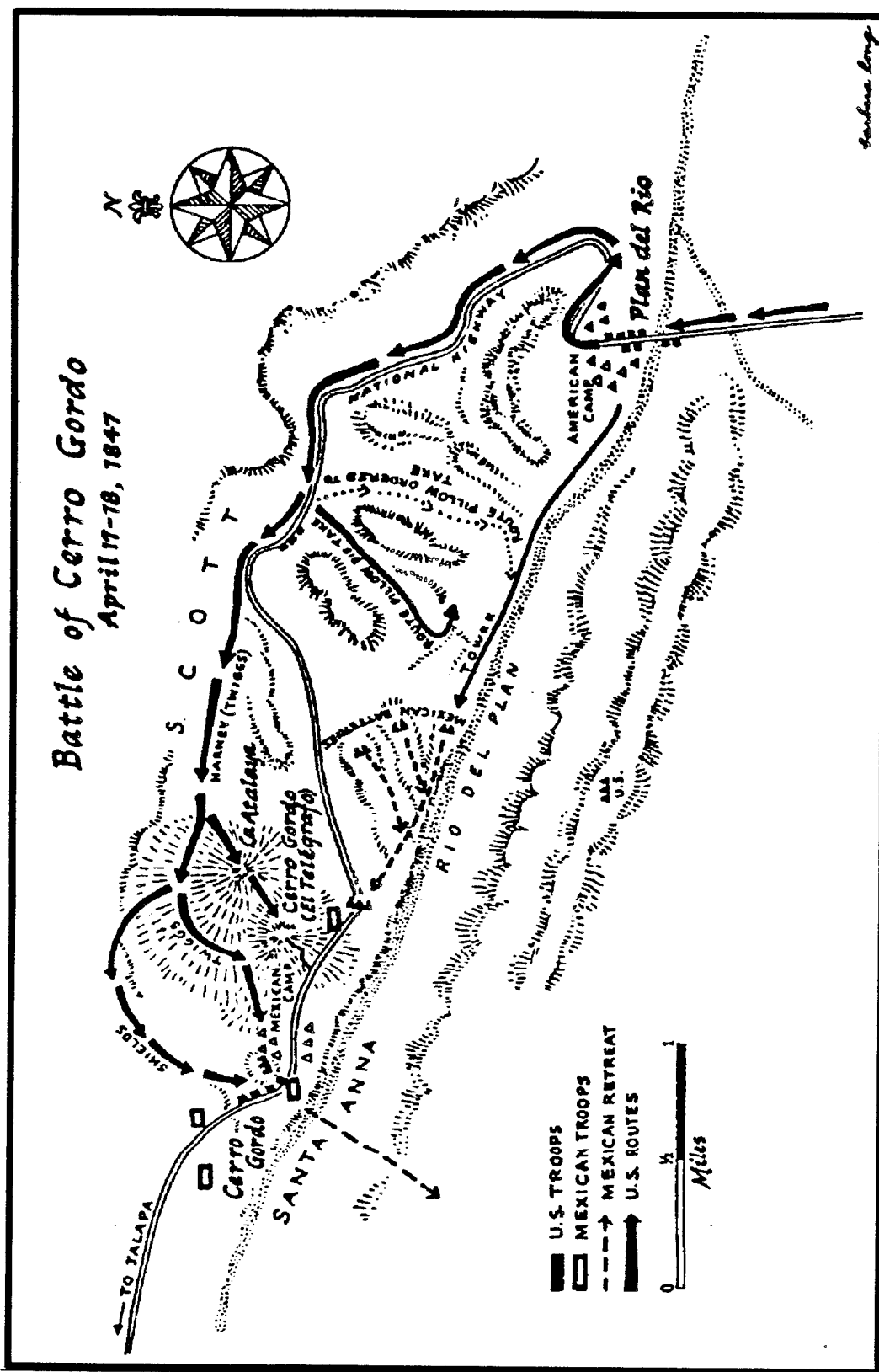


Figure 12. The Battle of Cerro Gordo. Reprinted from Charles L. Dufour, *The Mexican War, A Compact History, 1846-1848*, (New York: Hawthorn Books, Inc. 1968), 221.

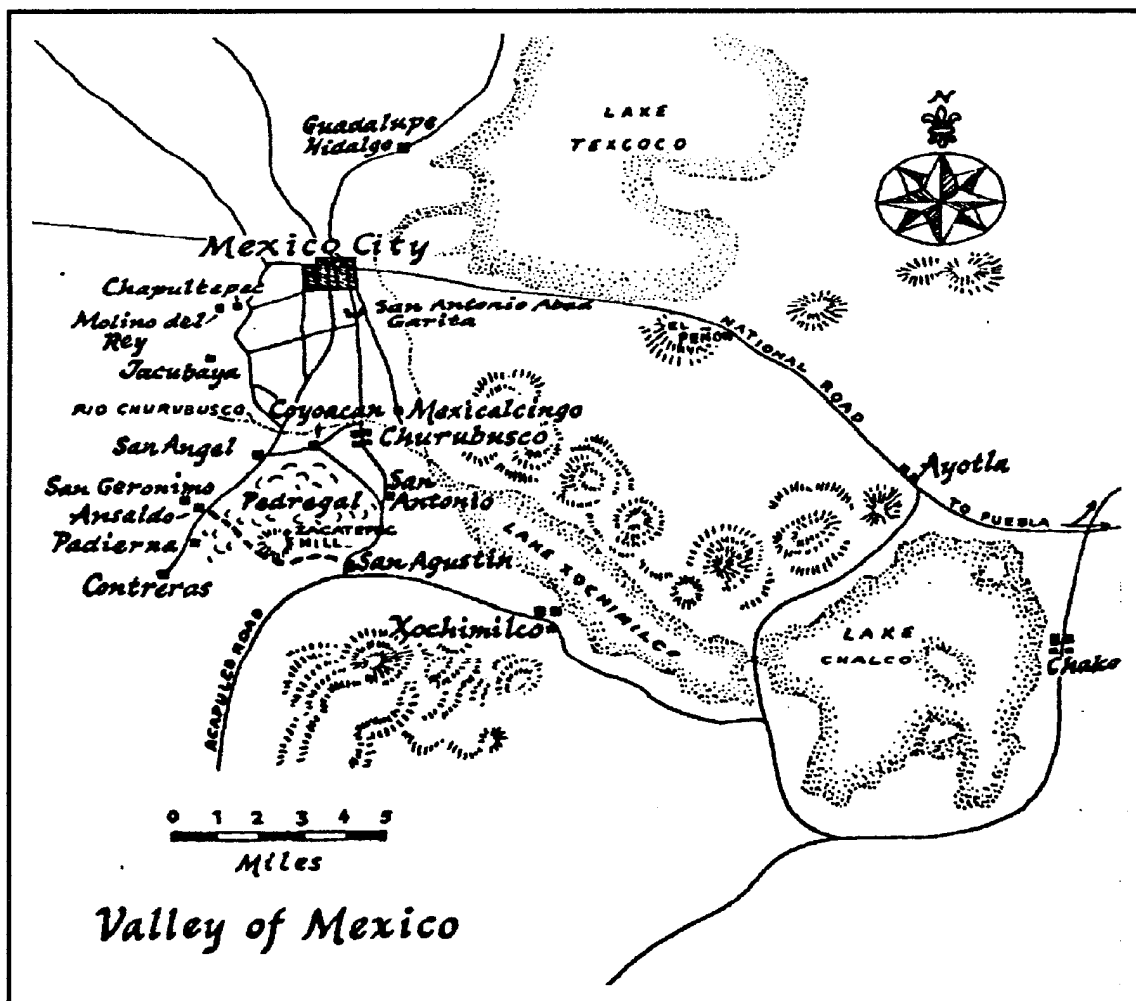


Figure 13. The Valley of Mexico. This map shows San Antonio, Padierna, San Angel, Churubusco, Molino del Rey, Chapultepec and Mexico City. Reprinted from Charles L. Dufour, *The Mexican War, A Compact History*, 1846-1848, (New York: Hawthorn Books, Inc. 1968), 238.

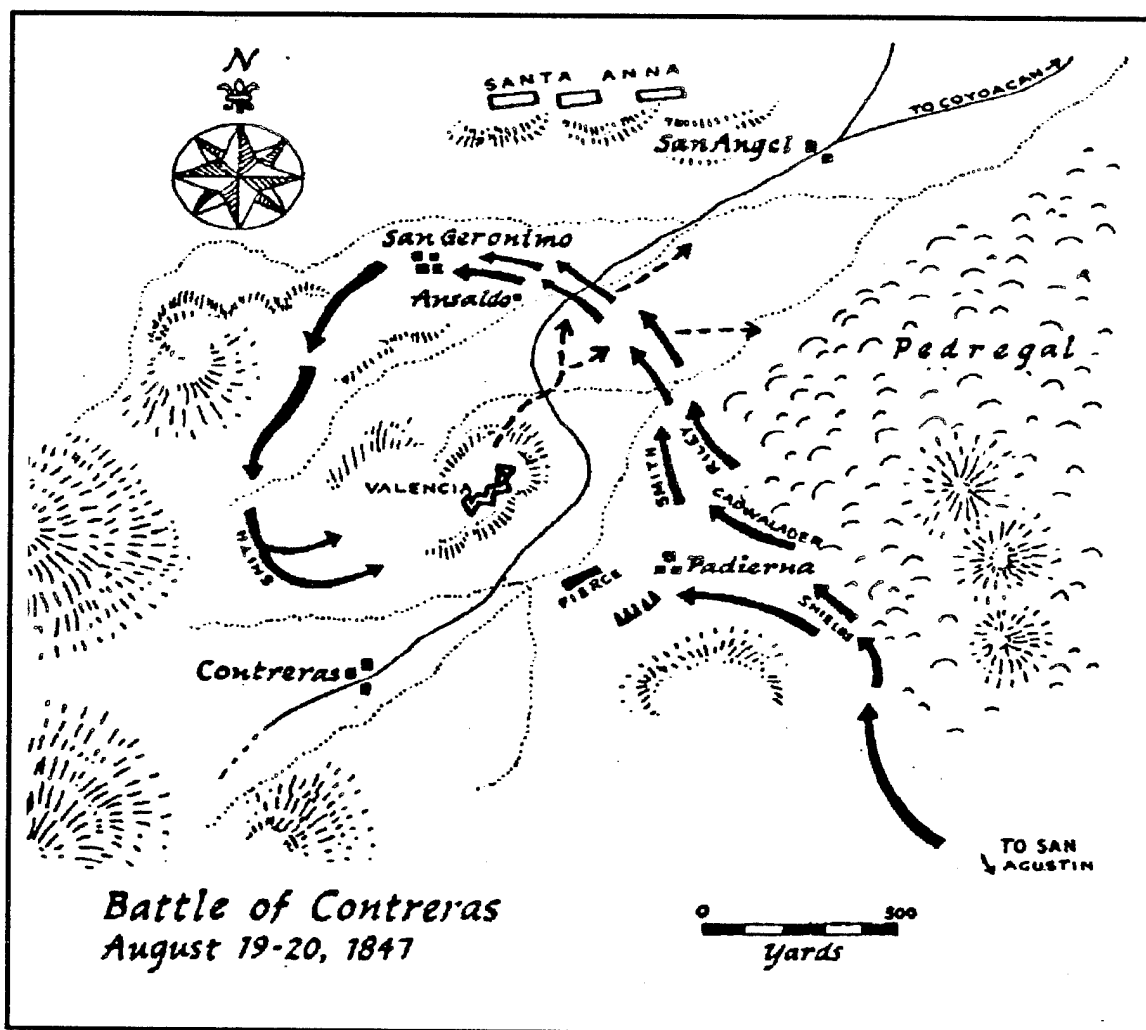


Figure 14. The Battle of Contreras. The battle took place closer to the village of Padierna than to Contreras. American troops did not enter Contreras until after the battle was over. The engineers attacked the rear of Valencia's position with General Smith's brigade. Reprinted from Charles L. Dufour, *The Mexican War, A Compact History, 1846-1848*, (New York: Hawthorn Books, Inc. 1968), 246.

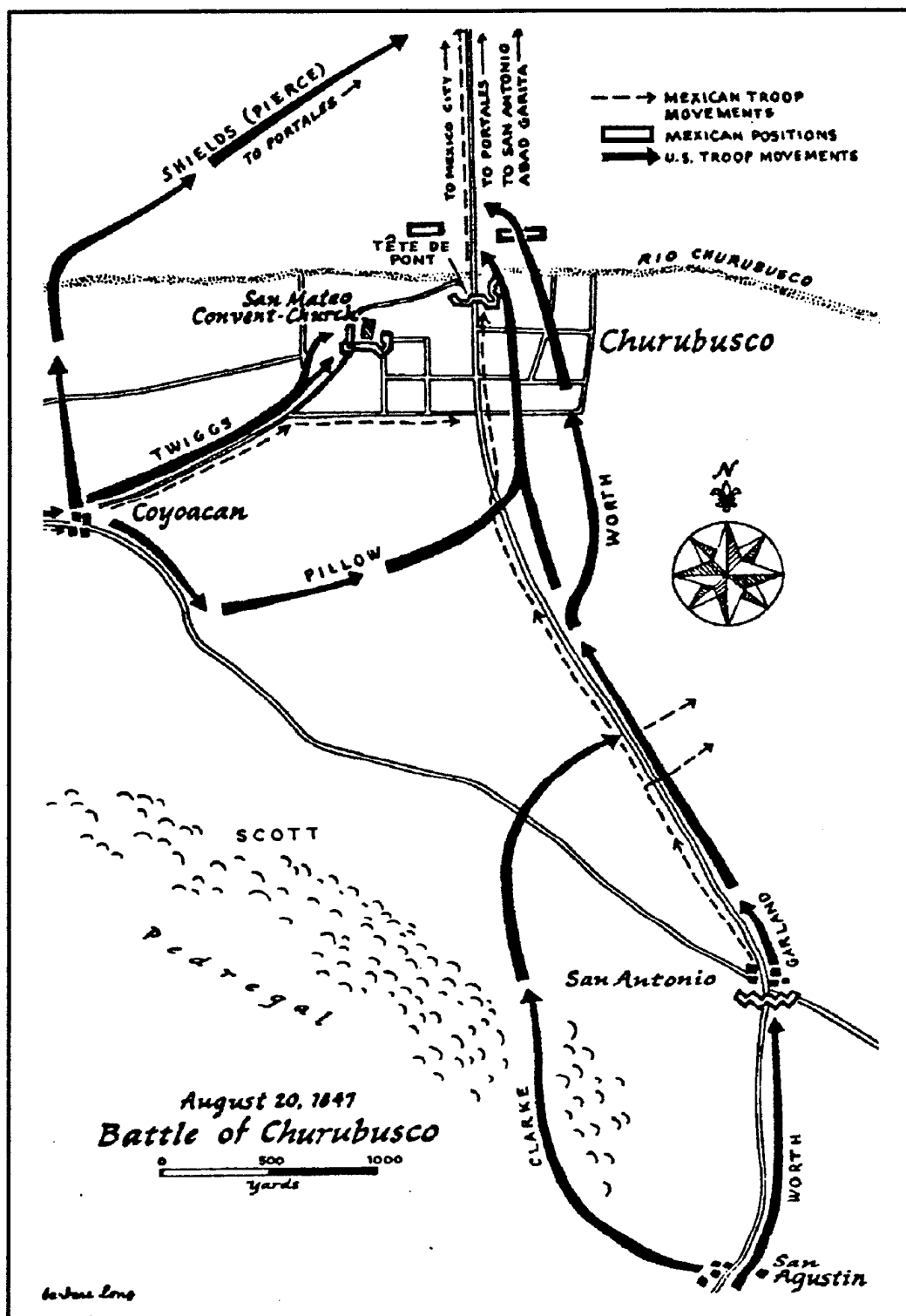


Figure 15. The Battle of Churubusco. The engineers conducted reconnaissance and helped fight the artillery battle at the San Mateo Convent. Reprinted from Charles L. Dufour, *The Mexican War, A Compact History, 1846-1848*, (New York: Hawthorn Books, Inc. 1968), 252.

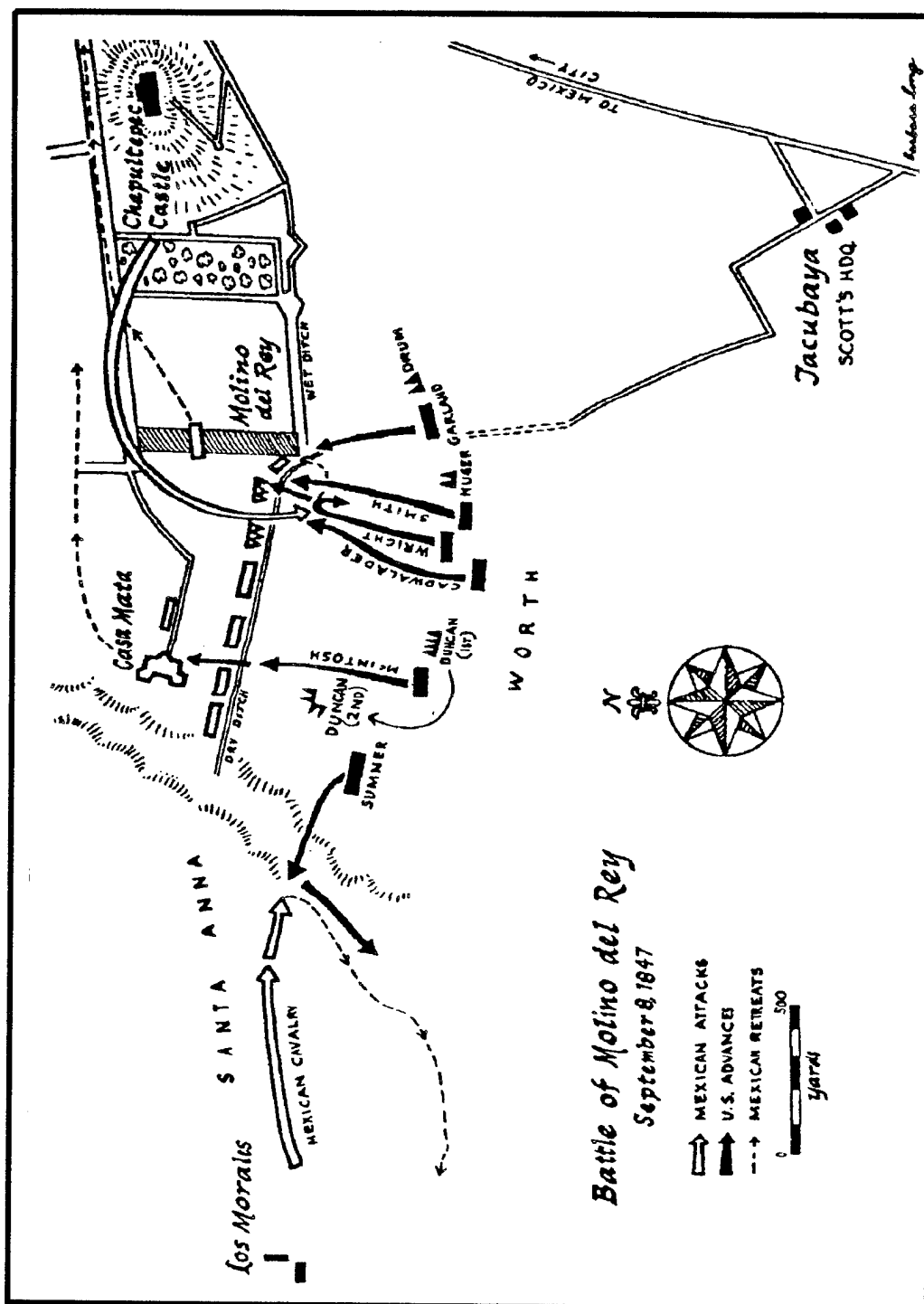


Figure 16. The Battle of Molino del Rey. Reprinted from Charles L. Dufour, *The Mexican War, A Compact History, 1846-1848*, (New York: Hawthorn Books, Inc. 1968), 261.

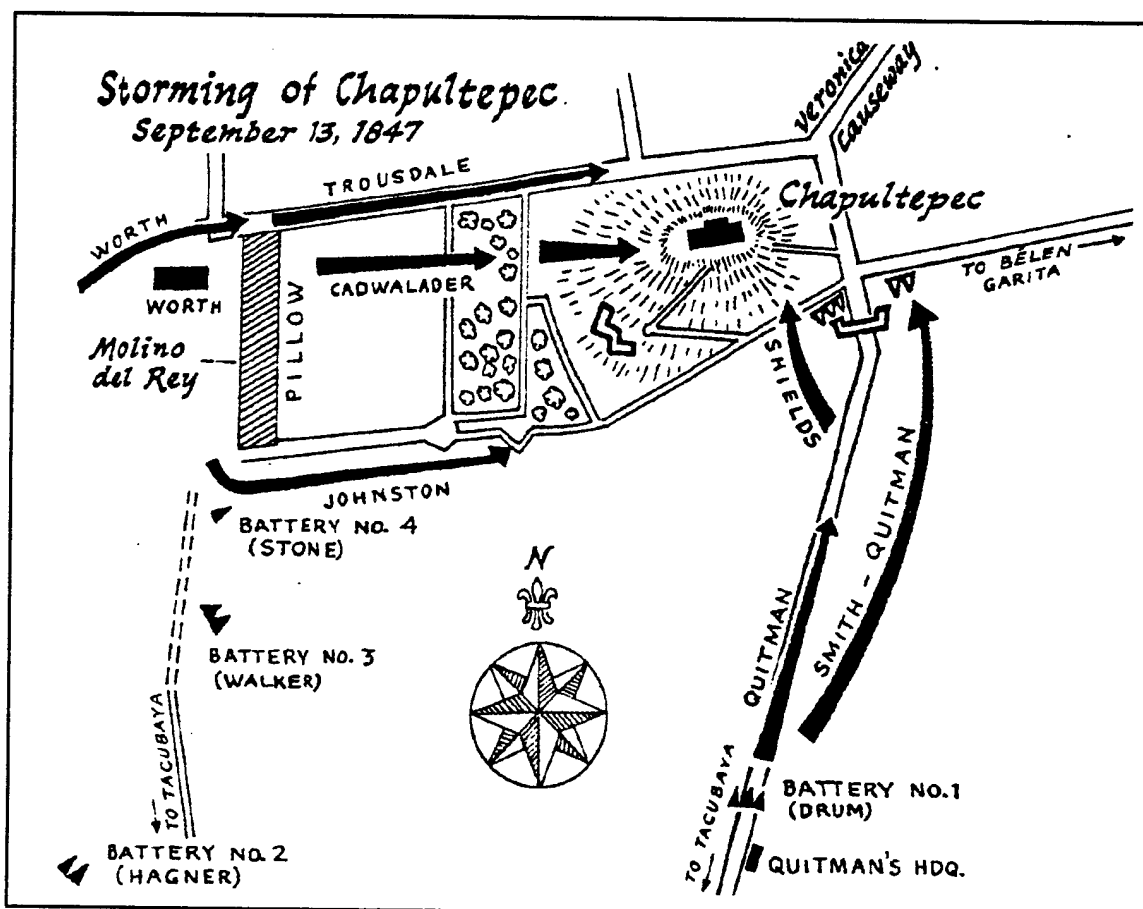


Figure 17. The Storming of Chapultepec. The engineers prepared the firing batteries and distributed storming tools to the attackers. Reprinted from Charles L. Dufour, *The Mexican War, A Compact History, 1846-1848*, (New York: Hawthorn Books, Inc. 1968), 267.

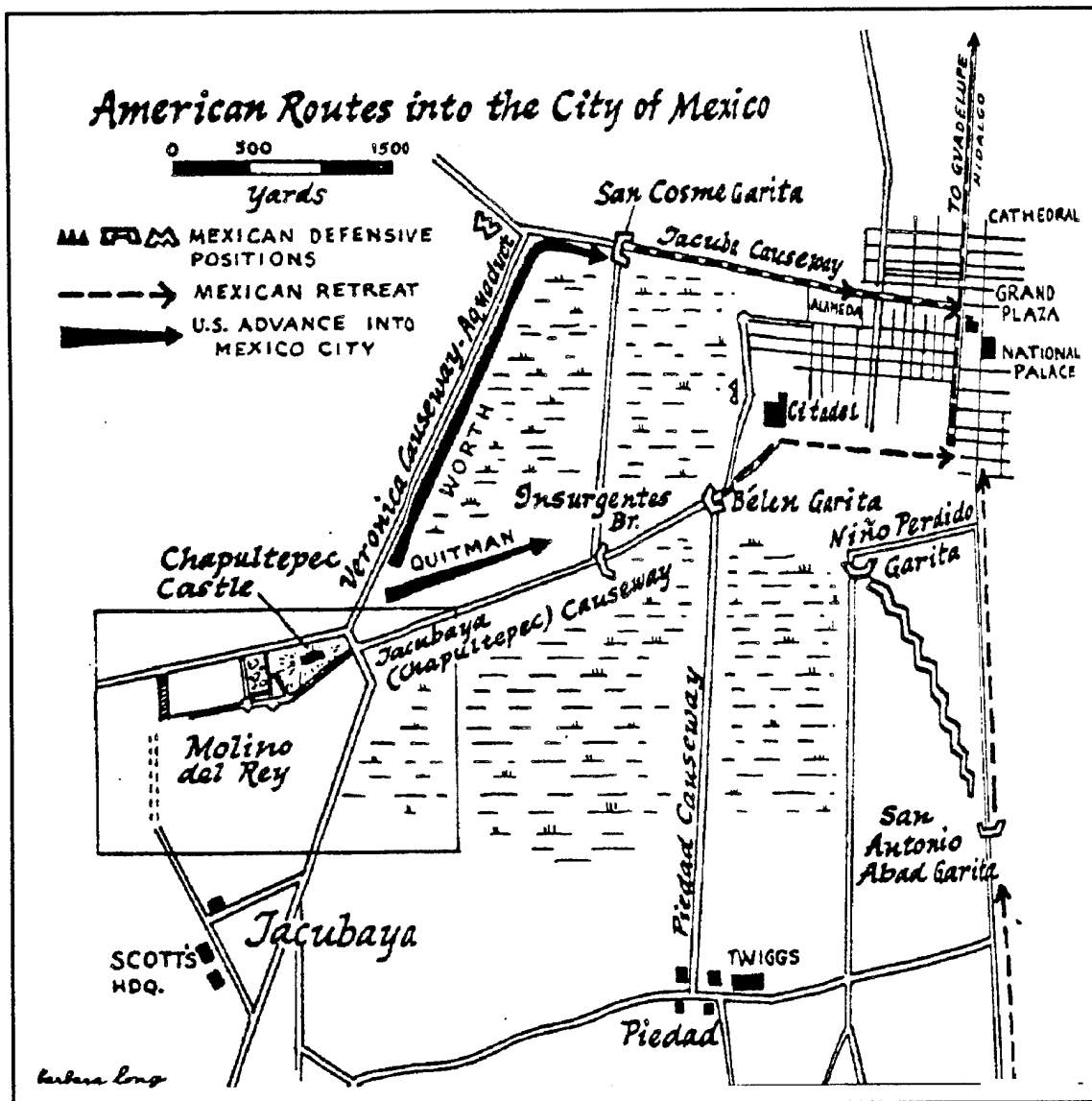


Figure 18. The Battle at Garita de San Cosme and Mexico City. The engineers entered houses on the approach to the Garita de San Cosme and broke through walls to construct a covered approach. They later conducted a house-by-house search in the city, looking for remnants of Santa Anna's army. Reprinted from Charles L. Dufour, *The Mexican War, A Compact History, 1846-1848*, (New York: Hawthorn Books, Inc. 1968), 272.

Endnotes

¹John S. D. Eisenhower, *So far from God, The U.S. War with Mexico, 1846-1848*, (New York: Random House, 1989), 267.

²The story of the mules is from Gustavus W. Smith, *Company "A" Corps of Engineers, U.S.A., 1846-1848, in the Mexican War*, (Willets Point, New York: The Battalion Press, 1896), 28-29; George B. McClellan, *The Mexican War Diary of George B. McClellan*, ed. William S. Meyers (Princeton: Princeton University Press, 1917), 74; and William M. Robinson, "The Engineer Soldiers in the Mexican War," *The Military Engineer* 133 (January-February, 1932), 5.

³Smith, 30.

⁴Both sides suffered greatly at the Battle of Buena Vista on 23 February 1847. The Americans took 673 casualties and another 1500 or more deserted. Santa Anna's army suffered 1,800 casualties and lost 300 to Taylor as prisoners. However, Santa Anna's march back from Buena Vista was far more devastating than the battle itself: some 10,500 poorly equipped Mexican troops perished, over half the number he started with. However, on his return to Mexico City, Santa Anna displayed captured American flags and artillery as evidence of a great victory. With this "victory" Santa Anna's political future was secure, at least for the short term. Eisenhower, 190-91, 269, 271.

⁵Eisenhower, 278.

⁶Eisenhower, 277-8 and P. G. T. Beauregard, *With Beauregard in Mexico: The Mexican War Reminisces of P. G. T. Beauregard*, ed. Harry Williams, (Baton Rouge: Louisiana State University Press, 1956), 32-39.

⁷William Selby Harney joined the army in February 1818 as a second lieutenant in the 1st Infantry. He spent a year with the artillery in 1821 and 1822 before transferring back to the infantry. He was promoted to lieutenant colonel in the dragoons in August 1836 and to colonel just after the War with Mexico began, in June 1846. He was further promoted to brigadier general in June 1858 and retired from the service in 1863. He earned three brevets in his career, each during a different war. He was breveted to colonel for gallantry and meritorious conduct in the Florida Indian War, to brigadier general for gallantry and meritorious conduct at Cerro Gordo in the Mexican War and to major general after his retirement for long and faithful service. Harney died in May 1889. Francis B. Heitman, *Historical Register and Dictionary of the United States Army*, (Washington D.C.: Government Printing Office, 1903), 502.

⁸Peter Valentine Hagner was the number twenty-five graduate in his West Point Class of 1836 and was commissioned into the artillery. He earned his promotion to first lieutenant in May 1840 and served through the Mexican War at that rank. Further promotions came slowly: captain (July 1851), major (August 1861), lieutenant colonel (June 1863) and colonel (March 1867). He did earn four brevets, however: to captain for gallantry at Cerro Gordo, to major for gallantry at Chapultapec and

to colonel and brigadier general in 1865 for faithful and meritorious service in the ordinance department. Heitman, 486.

⁹Smith and Eisenhower claim one twenty-four pounder was taken to the battery; Beauregard claims two. McClellan said there was one twenty-four pounder, one twelve pounder and a twenty-four pound howitzer, as well as mountain howitzers and rockets. Beauregard also claimed that the noise made hauling the gun(s) up the mountain was greater than that when firing and saw the whole mission of placing the battery atop the mountain a waste of time and effort. McClellan agrees that the fires were ineffective. McClellan, 88-89, Beauregard, 38-39, Smith, 30-31, and Eisenhower, 280.

¹⁰Smith, 30-32.

¹¹Bennet Riley began his military career as an ensign of rifles in January 1813. In March of that year he became his unit's third lieutenant, and the second lieutenant a year later, in April 1814. Between wars he served with the 1st, 2d, 4th, 5th, and 6th Infantry regiments. Riley earned four brevets in his career: to major in 1828 for faithful service, to colonel in June 1840 for bravery at the Battle of Chokachatta, Florida; to brigadier general in April 1847 for gallantry at the Battle of Cerro Gordo; and to major general in August 1847 for gallant conduct at the battle of Contreras. Riley died in June 1853. Heitman, 831.

¹²James Shields, an Irishman by birth, started his military career as a brigadier general of volunteers in July 1846. At the Battle of Cerro Gordo he earned a brevet promotion to major general for gallantry and meritorious conduct. After the Mexican War, Shields was honorably discharged. He re-entered service in August 1861 as a brigadier general of volunteers and served until he resigned, in March 1863. Shields died in June 1879. Heitman, 883.

¹³Eisenhower, 282-3.

¹⁴The story of McClellan's detachment is from McClellan, 79-87.

¹⁵Pillow's brigade consisted of the following regiments: Colonel Francis M. Wynkoop's 1st Pennsylvania Volunteers, Colonel William B. Campbell's 1st Tennessee Volunteers and Colonel William T. Haskell's 2nd Tennessee Volunteers. McClellan, 82-83.

¹⁶Differences and problems between the regulars and volunteers are reported in: K. Jack Bauer, *The Mexican War, 1846-1848*, (Lincoln, Nebraska: University of Nebraska Press, 1992), 83; Eisenhower, 109; McClellan, 16, 80; and others.

¹⁷Regarding Lieutenant Tower's not taking a firm stand with General Pillow, McClellan wrote: "Lieutenant Tower should, as the senior Engineer with the column, have taken a firm stand and have forced General Pillow to have pursued the proper path. It was certainly a fine opportunity for him to show what stuff he was made of--but unfortunately he did not take advantage of it at all." McClellan, 81-82.

¹⁸McClellan, 86.

¹⁹Little is recorded of Francis M. Wynkoop, the commander of the 1st Pennsylvania Volunteers. Heitman lists two Wynkoops from Pennsylvania: Alfred and George C., both Civil War era officers. Bauer cites Wynkoop by his full name. Other authors, including Eisenhower, mention him only as "Wynkoop" or "Colonel Wynkoop," if he is mentioned at all, and provide no biographical data. Heitman, 1064.

²⁰Eisenhower, 294; and McClellan, 91-92.

²¹Smith, 32.

²²Eisenhower, 295.

²³David H. Hastings was an Irishman by birth and a soldier by trade. He served as a private, corporal and sergeant in Company B, 2d Infantry from July 1837 through July 1840. He then became that company's first sergeant and held that position until November 1845. Hastings transferred to Company K, 3rd Artillery where he served as private, corporal, sergeant and first sergeant. In April 1847 Lieutenant Smith of the Company of Sappers and Miners had Hastings transferred to his company, where he became that unit's first sergeant. He served with the engineers throughout the remainder of the Mexican War. For his gallantry in battle, Smith recommended Hastings for a commission. He received this reward in July 1848 when he was given a brevet to second lieutenant in the dragoons. He served with the dragoons and cavalry units for the remainder of his career, from which he retired as a major in the 5th Cavalry in December 1863. Hastings died in September 1882. Heitman, 510.

²⁴G.A. Youngberg, *History of Engineer Troops in the United States Army 1775-1901*, (Washington Barracks, Washington D.C.: Engineer School Press, 1905), 42; and Smith, 33. Clarke would take back over from Hastings on 14 July 1848. Hastings was appointed brevet second lieutenant and assigned to the First Dragoons on that date.

²⁵Eisenhower, 296. A typographical error in Eisenhower reports the date as 6 May 1846.

²⁶Smith, 33.

²⁷John Anthony Quitman began his career as a brigadier general of volunteers in July 1846, and was promoted to major general less than a year later, in April 1846. He earned a brevet promotion to major general in September 1846 for gallantry at the Battle of Monterey, action for which he was also awarded a sword by Congress as a testimonial. Quitman was discharged in July 1848 and died in July 1858. Heitman, 812.

²⁸Eisenhower, 306-7. The army included a battalion of marines which was part of Quitman's Division. It is from this march to Mexico City that the opening line from the Marine Corps Hymn comes: "From the Halls of Montezuma."

²⁹Eisenhower, 312-3.

³⁰William Turnbull was the ninth graduate in his West Point Class of 1819, from which he was commissioned into the Artillery Corps. He was promoted to first lieutenant in the artillery, but transferred to the Topographical Engineers as a brevet captain in August 1831. He earned major in July 1838, the year that the Topographical Engineers became a separate branch. For gallantry at the Battles of Contreras and Churubusco, Turnbull was awarded a brevet promotion to lieutenant colonel. He earned a further brevet, to colonel, for gallantry at Chapultapec. Turnbull died in December 1857. Heitman, 974.

³¹Arthur D. Howden Smith, *Old Fuss and Feathers, the Life and Exploits of Lieutenant General Winfield Scott*, (New York: The Greystone Press, 1937), 304; and Eisenhower, 314.

³²Charles Ferguson Smith, the nineteenth graduate in the West Point Class of 1825, was commissioned a second lieutenant in the 2d Artillery. He earned promotion to captain before the Mexican War, in July 1838. He was three times breveted in that war: to major in May 1846 for gallantry at the Battles of Palo Alto and Resaca de la Palma; to lieutenant colonel in September 1846 for gallantry at Monterey; and to colonel in August 1847 for gallantry at the Battles of Contreras and Churubusco. After the war he earned regular promotions, and by September 1861 Smith was a colonel in the 3rd Infantry. He additionally earned promotions in the volunteers, to brigadier general in August 1861 and to major general in March 1862. Smith died in March 1862. Heitman, 895.

³³Smith, 34.

³⁴Smith, 35.

³⁵Eisenhower, 319; and Smith, 36.

³⁶Eisenhower, 319.

³⁷The movements in the Battle of Contreras are from Eisenhower, 318-23.

³⁸John Bankhead Magruder graduated fifteenth in his West Point Class of 1830 and initially was commissioned into the infantry. A year after he graduated he transferred to the artillery and was promoted to captain in June of 1846. He was breveted twice in the Mexican War for gallantry and meritorious conduct: at the Battle of Cerro Gordo and the Battle of Chapultapec. He served in the American Civil War as a major general in the Confederate Army. Heitman, 684.

³⁹George Cadwalader began his career as a brigadier general of volunteers in March 1847. After the Battle of Chapultapec he was breveted to major general for gallantry. After an honorable discharge in 1848, Cadwalader came back to active duty briefly as a major general of the Pennsylvania volunteers from April to July 1861. He returned, again a major general of volunteers, in April 1862 and served until he resigned in July 1865. Cadwalader died in February 1879. Heitman, 272.

⁴⁰George Washington Morgan entered the U.S. Military Academy in July 1841, but only completed two years of study, leaving in June 1843.

Three years later, he was a colonel in the 2d Ohio Infantry, earning a promotion in the U.S. Army to colonel less than a year later, in March 1947. Morgan was breveted to brigadier general in August 1847, after the Battles of Contreras and Churubusco. After a break in service from August 1848 through November 1861, Morgan returned as a brigadier general of volunteers. He served in that capacity until his resignation in June 1863. Morgan died in July 1863. Heitman, 725.

⁴¹Persifor Frazer Smith began his military career as a colonel in the Louisiana volunteers in February 1836. He had a break in service from May 1836 through May 1846, after which he returned as a brigadier general, again of the Louisiana volunteers. He soon became the Colonel of the Mounted Rifles. After the Mexican War, in December 1856, Smith earned a promotion to brigadier general. Persifor Smith was twice breveted for gallantry and meritorious conduct in the Mexican War: to brigadier general after Monterey and to major general after Contreras and Churubusco. Smith died in May 1858. Heitman, 902.

⁴²The engineer company's participation in the Battle of Contreras is from Smith, 36-39.

⁴³John McClellan earned his commission into the artillery from West Point, where he graduated sixth in the Class of 1826. After resigning from the artillery as a first lieutenant in November 1836, McClellan returned to service as a topographic engineer captain in July 1838. He served various topographic assignments before the Mexican War, including two tours of duty in Florida during the Seminole War and harbor improvement projects in North Carolina and on Lake Michigan. In the Mexican War he was twice breveted for gallantry: to major in August 1847 after the Battles of Contreras and Churubusco and to lieutenant colonel in September 1847 after the operations before Mexico City. John McClellan died in September 1854. Heitman, 656; and Adrian G. Traas, *From the Golden Gate to Mexico City: The U.S. Army Topographical Engineers in the Mexican War, 1846-1848*, (Washington, D.C.: United States Army Corps of Engineers Office of History and the Center of Military History, 1993), 142.

⁴⁴Smith, 40.

⁴⁵Robert R. Miller, *Shamrock and Sword: The Saint Patrick's Battalion in the U.S.-Mexican War*, (Norman, Oklahoma: University of Oklahoma Press, 1989), 83-89.

⁴⁶Franklin Pierce was a New England politician who refused the post of Attorney General of the United States so that he might enlist and fight in the War with Mexico. He began his short military career as an infantry colonel in February 1847 and was promoted to brigadier general a month later. Pierce resigned from the army in March 1848 and served as President of the United States during the inter-war years, from 1853 to 1857. Pierce died in October 1869. Eisenhower, 304; Heitman, 791.

⁴⁷Eisenhower, 324-27.

⁴⁸William Thomas Harbaugh Brooks earned his commission through the U.S. Military Academy, where he graduated forty-sixth in the Class

of 1841. Brooks started the Mexican War as a first lieutenant, but was twice breveted for gallantry, first to captain at Monterey and later to major at Contreras and Churubusco. Brooks began the Civil War as a captain in the regular army but soon became a brigadier general of volunteers, in September 1861, and was later promoted to major general, in June 1863. His appointment as volunteer major general was revoked in April 1864 and he resigned from both the volunteer service and the regular army three months later. Brooks died in July 1870. Heitman, 249.

⁴⁹Martin John Burke graduated twenty-eighth in his West Point Class of 1836 and was commissioned into the artillery. He began the Mexican War as a first lieutenant, but was soon appointed regimental adjutant, in May 1846, and served in that position until his promotion to captain just prior to the Vera Cruz operation in March 1847. Burke died in the line of duty at the Battle of Churubusco on 20 August 1847. Heitman, 263.

⁵⁰Smith, 43.

⁵¹Francis Taylor, a West Point graduate from Virginia, was ninth in the Class of 1825 and, upon commissioning, joined the 4th Artillery. He soon transferred to the 1st Artillery, the unit he fought with in the Mexican War. Taylor began the war as a captain, but was twice breveted for gallantry, first to major after Cerro Gordo, and later to lieutenant colonel after Churubusco. Taylor earned his promotion to major after the war, in March 1855, and died at that rank in October 1858. Heitman, 946.

⁵²Smith, 45.

⁵³The actions of the engineer company at the Battle of Churubusco are predominantly from Smith, 41-47.

⁵⁴Miller, 89.

⁵⁵Eisenhower, 326-27.

⁵⁶Eisenhower, 328-32.

⁵⁷Smith, 48.

⁵⁸Edwin Vose Sumner started his long military career as an infantry second lieutenant in March 1819. When the War with Mexico started, Sumner was a captain with the 1st Dragoons. He was soon promoted to major, in June 1846, and transferred to the 2d Dragoons. In the Mexican War, he earned two brevets: to lieutenant colonel after Cerro Gordo and to colonel after Molino del Rey. After the war the promotions continued and Sumner began the Civil War with a promotion to brigadier general, in March 1861. In May 1862 he earned his third brevet, this time to major general, for gallantry at the Battle of Fair Oaks, Virginia. Sumner was promoted to major general of volunteers in July 1862 a little less than a year before his death, in March 1863. Heitman, 936.

⁵⁹George Wright was the number twenty-four graduate of his West Point Class of 1822, and was one of four George Wrights who were officers in the Civil War. Upon commissioning, he joined the infantry, and began the Mexican War as a captain in the 8th Infantry. Wright earned four brevets throughout his career: to major while fighting in the Florida Indian War, to lieutenant colonel for gallantry at Contreras and Churubusco, to colonel for gallantry at Molino del Rey and to brigadier general in December 1864 for long and faithful service. He served during the Civil War as a brigadier general of volunteers until his death, by drowning, in July 1865. Heitman, 1062.

⁶⁰Eisenhower, 334-35; and Smith, 48.

⁶¹John Garland, a Virginian, joined the infantry in March 1813. When the Mexican War started, he was still in the infantry, but had achieved the rank of lieutenant colonel. His promotion to colonel came after the war, in May 1859. Garland earned three brevets: to major for faithful service, to colonel for gallant conduct at the Battles of Palo Alto and Resaca de la Palma and to brigadier general for gallantry at Contreras and Churubusco. Garland died in June 1861. Heitman, 447.

⁶²Eisenhower, 334-36; and Smith, 48.

⁶³There was one storming party each for Pillow's and Quitman's divisions, furnished by Worth and Twiggs, respectively, and comprised completely of regulars. The detachment of forty marines formed part of one of the storming parties. Eisenhower, 340.

⁶⁴Eisenhower, 340-41.

⁶⁵Eisenhower, 342.

⁶⁶The story of the engineers actions at the Garita de San Cosme is from Smith, 48-52.

⁶⁷Newman S. Clarke enlisted as an ensign in the 11th Infantry in March 1812. Promotions and transfers followed, and included an assignment as regimental adjutant for the 11th Infantry. Clarke was breveted to captain for gallantry and good conduct in the Battle of Niagara, and later breveted to major, in July 1824, for faithful service. In the Mexican War, Clark started as a lieutenant colonel, but was soon promoted to colonel, in June 1846. At the siege of Vera Cruz his gallantry earned him a brevet promotion to brigadier general. Clarke died in October 1860. Heitman, 307.

⁶⁸Ulysses Simpson Grant was the number twenty-one graduate in the West Point Class of 1843. Upon commissioning, the Ohio native joined the infantry, where he remained throughout his military career. Grant began the War with Mexico as a second lieutenant, and earned first lieutenant in September 1847. Grant was twice breveted for gallantry in the Mexican War: to first lieutenant at Molino del Rey and to captain at Chapultepec. He resigned from the service as a captain in July 1854. When the Civil War broke out, Grant came back into service as a colonel in the Illinois Infantry. Promotions, both regular and in the volunteers, followed, and in March 1864 Grant became Commander in Chief of the U.S. Army and saw the Civil War to a successful conclusion. In

July 1866, he was promoted to the rank of general. Grant served as Secretary of War from August 1869 to January 1868 and as President of the United States from March 1869 to March 1877. Grant died in July 1885. Heitman, 470.

⁶⁹Smith, 50; and Bauer, 320.

⁷⁰Smith, 53.

⁷¹James Duncan, a New Yorker and West Point graduate, started his career in the artillery after graduating sixth in the Class of 1834. Duncan started the Mexican War as a captain but soon earned brevets to major (Palo Alto), to lieutenant colonel (Resaca de la Palma), and to colonel (Monterey). After the war Duncan earned a promotion to colonel and served as Inspector General until his death in July 1849. Heitman, 387.

⁷²Smith 52-55.

⁷³The final events at Mexico City are from Smith, 57-65.

⁷⁴Smith, 56.

CHAPTER 6

OBSERVATIONS AND RECOMMENDATIONS

The purpose of this study is to determine the contribution of the newly formed engineer company to the American war effort in Mexico. As stated in Chapter 1, there are possible effects of the company's actions beyond the battlefield, such as influencing future doctrine and organization. I will not address these effects, but instead, focus on tactical contributions during the war.

The Mexican War exploits of Company A are in several areas: repairing roads, bridging, conducting reconnaissance, building fortifications, leading maneuver units and fighting as infantry. I will make observations in each of these areas and, in some cases, compare Mexican War engineer activities to those of other wars. Additionally, I will present comments from some of the key players that are helpful in the determination.

Road Repair

While the engineers built or repaired roads throughout the war, the crowning example of their ability to repair roads is the march from Matamoros to Tampico. This thirty-four day project was the company's first mission and one that formed habits that would last throughout the war. The engineers usually drew heavy labor details from infantry units, they used innovative methods to get the jobs done (the "corn-

shucking match," for example), and they began to earn a reputation a reliable organization.

The engineers further repaired or built roads at Vera Cruz, Cerro Gordo, San Antonio and Contreras. In most cases the repairs were temporary, sufficient only to allow the artillery and trains to pass. Building and repairing the army's roads were expected engineer missions, given the experiences of the Revolutionary War and the War of 1812.

In today's verbiage these were mobility missions--the engineers improved routes to expedite the immediate advance of the infantry, artillery and combat trains. When Company A breached Mexican boulder obstacles and filled Mexican ditches near San Antonio, it performed a mission not far removed in purpose from what its modern-day descendant, A Company 1st Engineer Battalion, did in Desert Storm by breaking through Iraqi sand berms and filling Iraqi trenches.

Bridging

Building bridges is the archetypical engineer mission but is virtually absent from all accounts of the Mexican War. This absence is more interesting considering the importance that bridging would later play in the American Civil War.¹ The lack of bridging is a function of the terrain and the season during which they moved over the terrain. Lieutenant Smith said that many of the fords they crossed would have been impassable during wet weather, and thus would have required bridging.²

The sappers did build several hasty bridges over the small streams on their march from Matamoros to Tampico. Smith and his men

used local timber to build these bridges, not the company's pontoon kit, which presumably traveled by sea with most of the engineers' equipment. The only mentions of the pontoons during the entire war are when Captain Swift procured the bridge set at West Point and when the engineers unloaded it onto the shores near Vera Cruz. The timber bridges built on the march to Tampico were the only bridges constructed during the war.

Reconnaissance

The scouting and observing that engineers did in Mexico include what the army today calls engineer reconnaissance--reconnoitering routes to assess trafficability and locate alternate routes. These were expected missions: engineers had looked for routes in previous wars and route reconnaissance continues to be a mission for today's engineers. However, commanders in the Mexican War called upon engineer officers to perform missions that we associate today with scouts or cavalry: determining the disposition of enemy forces and making maneuver recommendations to line commanders. At Cerro Gordo, for example, Smith moved forward of friendly lines to find the exact location of the enemy's works--information that helped Colonel Harney make his successful attack. Similar missions at Contreras and Churubusco also gave maneuver commanders useful information.

I initially expected scouts, not engineers, to perform this type of reconnaissance. However, the army of 1847 did not have scouts as we know them today. The infantry employed their skirmishers in a security role rather than as intelligence gatherers. Taylor did employ twenty-seven Texas Ranger volunteers in a reconnaissance role under

Major Ben McCulloch³ and referred to them as his "spy company."⁴ McCulloch's spy company was unique and its services were not immediately available to all commanders. General Scott also had a "spy company," although this unit consisted mainly of Mexicans. Commanders often bought information from local natives or other non-military sources.

Scott relied primarily on his engineers, including those of the sapper company and the topographic engineers, to do his scouting.⁵ Additionally, engineers had performed similar reconnaissance missions during the Revolutionary War and the War of 1812. In this light, it is reasonable to expect that the engineer company would conduct non-engineer reconnaissance. Later, as scouts and cavalry assumed these missions, the engineers would focus on engineer reconnaissance.

Fortifications

Constructing siegeworks has long been the domain of military engineers, and the Mexican War was no different. Vera Cruz is the battle that gave the engineer company visibility and is cited today even in brief accounts of the history of the Corps of Engineers. Engineer officers learned Vauban's siege techniques in the classroom at West Point and applied them in the field on the Mexican coast. Their contribution to Scott's siege was significant. The engineers ran the show, from determining locations for the artillery to supervising construction of the batteries to building the connecting saps and parallels.

Had there not been an engineer company, engineer officers on Scott's staff alone would have borne the responsibility for these jobs.

What the soldiers of the company provided was a supervisory chain that linked the engineer officers to the infantry work details. The officers still superintended the works, but fewer officers were needed in a direct supervisory role. The company's effect on the operation was an efficient siege that resulted in capitulation after only sixteen days. If the siege had lasted longer, Scott's forces would have been subject to the diseases that mosquitoes brought to the Mexican coast with warmer weather.

While the siege at Vera Cruz was by-the-book, the engineers' actions in building fortifications at Cerro Gordo were field-expedient. Soldiers from Company A dug a firing platform from the hard, rocky soil on top of La Atalaya that allowed American guns to fire on the neighboring Cerro Gordo. Engineers also placed guns at Contreras and built batteries at Chapultapec. All of these missions are fundamental engineering--jobs that today fall in the category of survivability.

Positioning of Artillery

A subset of siege operations, positioning artillery, initially struck me as odd. By modern standard, determining the firing locations for the guns and mortars is a job that belongs to the artillery. The Vera Cruz operation, however, was a siege in the classic Vauban style, and that meant it was engineer business. The engineers were the experts on fortifications and terrain and the location of the artillery was tied to both. Thus, it is reasonable that the engineers would position the batteries in these circumstances.

In one instance, at Contreras, an engineer officer positioned artillery in a non-siege engagement. When the Americans received fire from the Mexican artillery at Padierna, Lieutenant Foster guided Captain Magruder's battery forward and Lieutenant McClellan put them into a firing position. In this case, the engineers were in contact with the Mexicans (McClellan had his horse shot out from under him) and knew the terrain. It made sense for them to position the artillery.

Leading Infantry Units

At times, commanders called upon engineers to direct the movement of their units, or portions of them. Just before his brigade's main attack at Cerro Gordo, Brigadier General Harney directed Smith to move forward and conduct the movement of two infantry companies. Four months later, Brigadier General Cadwalader sent Smith out to find the troops from his brigade that had become lost north of Contreras and lead them into position. Later that day, the engineer company led Persifor Smith's Rifle Regiment in the attack, while Foster led the Ninth and Twelfth Infantry regiments in attacks into the retreating enemy's flank.

These are the most curious of the engineers' missions. Were the engineers actually "leading" the infantry with some sort of command responsibility, or were they merely acting as battlefield guides? The words "led" and "directed" certainly do not imply "command," yet the engineers seemed to act as more than simple road guides. In some cases, such as Cerro Gordo and Contreras, the engineer officers appear to have led the infantry into the close fight. In other cases they clearly provided directions and nothing more. In most of these cases the exact

relationship between engineer lieutenant and infantry commander is not clear.

Why call on engineer officers for help in leading units in combat? The engineer officers were all regulars, almost all West Point graduates, and all had the necessary training to lead such maneuvers. Because they were a special organization, the engineers enjoyed unusually direct access to the senior commanders. Additionally, the engineers were eager, reliable, and versatile. All of these attributes enabled the engineers to gain the trust of senior officers. Thus, when units became disorganized, such as Cadwalader's brigade at Contreras, an engineer officer might seem a natural choice to look to for help. In other cases, such as Cerro Gordo where Smith had just completed a reconnaissance, the engineers knew the terrain. It is reasonable in those cases to ask the engineer officer to lead the line unit. In any case, engineer officers leading line units is one area that deserves further study.

Fighting as Infantry

The second mission of the engineer soldier has long been to fight as infantry. Today there are procedures for engineer units to reorganize as infantry--a chore that involves the division commander's approval. In the Mexican War, the engineers seemed eager to join in the fight at every opportunity. Besides small skirmishes, such as at the Malibran ruins near Vera Cruz, soldiers of the engineer company fixed bayonets at Cerro Gordo, Contreras, Chapultapec, Molino del Rey and the

Garita de San Cosme. Numerous soldiers, including Foster and First Sergeant Hastings, were wounded in this fighting.

It is a little surprising that Smith was so eager to take his engineers into the close fight, given his small numbers. By the end of the war, the company's enlisted strength had fallen from seventy-two to thirty-six.⁶ The reasonable action here would have been to husband the precious resources--the well-skilled, highly paid soldiers. While the sapper's job is always dangerous, maneuver commanders today must make a conscious decision to employ their engineers as infantry--an option normally chosen only when all else fails.

"The Country Ought to be Proud"

Several comments from officers of the time are helpful in attempting to determine the contribution of the sapper company to the war effort. Scott's accolades for the West Point officers who formed the "backbone of the army's officer corps" are well known:

I give as my fixed opinion, that but for our graduated cadets the war between the United States and Mexico might, and probably would, have lasted some four or five years, with in its first half, more defeats than victories falling to our share; whereas in less than two campaigns we conquered a great country and a peace without the loss of a single battle or skirmish.⁷

Smith, the engineer officer who commanded the company through most of the war, wrote of the shortage of sappers during the war. While we expect the commander to ask for more soldiers, his comments are interesting and, perhaps, a little visionary--the single company would expand to a battalion at the beginning of the Civil War. In a report of October 1847, Smith wrote:

At Cerro Gordo, when I could furnish ten men [for details], fifty, at least, were necessary. In the operations in this valley, the same necessity has been felt for a larger number of soldiers of this character. There ought to be more companies of engineer soldiers in this army. Certainly, measures should be taken to complete the number of men allowed in the only company now authorized.⁸

Division and brigade commanders often had praise for the engineers and their accomplishments. After capturing Mexico City, Major General Worth stated:

Officers and men of every corps carried themselves with wonted gallantry and conduct. Of the staff: Lieutenants Stevens, Smith, and McClellan, engineers, displayed the gallantry, skill and conduct which so eminently distinguished their corps.⁹

Scott added:

Captain Lee, engineer, so constantly distinguished, also bore important orders from me [September 13] until he fainted from a wound and the loss of two nights' sleep at the batteries. Lieutenants Beauregard, Stevens, and Tower, all wounded, were employed with the divisions, and Lieutenants G. W. Smith and G. B. McClellan with the company of sappers and miners. Those five lieutenants of engineers, like their captain, won the admiration of all about them.¹⁰

Perhaps the most expressive of Scott's comments came after the Battle of Contreras: "If West Point had only produced the Corps of Engineers, the country ought to be proud of that institution."¹¹

One can easily find other tributes to the company's wartime actions. However, as praises flowed freely after the many battlefield victories, we should not conclude that the engineers won the war single-handedly. What we can conclude from these comments is that the engineers were a very important part of the team, a part that was visible, competent and often located at the decisive point of the battle.

Conclusions

As shown in the preceding observations, Company A, Corps of Engineers, made significant contributions to the U.S. Army's effort in the Mexican War. These contributions were chiefly in areas traditionally associated with combat engineering: building roads and bridges, clearing obstacles, constructing fortifications, conducting route reconnaissance and fighting as infantry. Engineers, including officers not in the engineer company such as Lee and Beauregard, were additionally an asset in non-traditional areas such as reconnaissance and battlefield leadership. The effects of all of these missions are difficult to measure in terms of number of days of combat saved or number of soldiers' lives spared, but it is safe to state that the effect was certainly positive. The reputations of both the Corps of Engineers and the U.S. Military Academy at West Point were greatly enhanced by the performance of the engineers in the Mexican War.

Recommendations for Future Research

One obvious question to pursue from this point is "What was the impact of the engineer company in the Mexican War on the future of combat engineering?" The answer to this question would go beyond what I have done here. I suspect that there is an impact that might reach as far into the future as the Spanish-American War or even World War I. There certainly was an impact on the American Civil War, if for no other reason that many engineer officers in the Mexican War later became general officers in that war.

Other questions remain concerning the engineer officers' roles as battlefield leaders. What are the conditions that caused infantry commanders to turn to engineer lieutenants to control their subordinate units? A systemic look at the role of reconnaissance would also reveal the engineer's role in an area that is outside today's engineer mission list.

The quality of the engineer enlisted troops offers another possibility. An interesting question to answer might be "What happened to the enlisted soldiers after the war?" We know that the officers of the company all became generals in the Civil War. One soldier, bugler Frederic Gerber, became the Sergeant Major of the Battalion of Engineers when it formed in 1861 and was later awarded the Medal of Honor. What about the other soldiers? If the engineer troops were of such high quality that engineer officers could only recruit the company to 70 percent strength, there might be some interesting stories among those sappers.

Post Script to Company A's Mexican War Activities

Company A, Corps of Engineers, has been on continuous active duty since 1846, and is the oldest and most decorated engineer company in the Army. After returning to West Point, the company assisted with the practical instruction of military engineering. In 1853 a detachment from Company A participated in the survey of the Northern Pacific Railway.¹² In 1858 the company traveled by rail to Fort Leavenworth, Kansas, where the army outfitted it for the overland march to Fort Bridger, Utah. On that march the engineers pioneered a new road for the

several thousand infantry, cavalry and artillery soldiers who went to Utah to maintain a national authority in the midst of the bloodless "Mormon War."¹³ Later that year, in September, another detachment from the company traveled to the Pacific coast, where they remained until June 1861 building bridges and roads.

In 1861 the company departed West Point for Washington D.C. to help protect public buildings and serve as honor guard for President Lincoln's inauguration. In August of that year, Company A became the nucleus for a new engineer battalion when Congress authorized three additional companies. The company saw action in the Civil War, the Philippine Insurrection, World War I, World War II, the Vietnam War and Desert Storm. Today the company is stationed at Fort Riley, Kansas, as A Company, 1st Engineer Battalion, part of the U.S. Army's 1st Infantry Division (Mechanized), the "Big Red One."

Endnotes

¹Stephen R. Riese, "The Effect of the American Civil War on U.S. River Crossing Doctrine." (Evolution of Modern Warfare Term Paper, U.S. Army Command and General Staff College, 1995), 2.

²Congress, House, *A Report on the route of General Patterson's division from Matamoros to Victoria, and of the troops detached from General Taylor's army from Victoria to Tampico*, report prepared by Gustavus W. Smith, 31st Congress, 2nd Session, 1850, House Executive Document No. 13, 2-7.

³Benjamin McCulloch entered the army as a captain in the Texas Rangers in April 1846. He served until September 1847, resigning as a volunteer quartermaster major. McCulloch served in the Confederate Army in the American Civil War as a brigadier general. He was killed on 7 March 1862 at the Battle of Pea Ridge, Arkansas. Francis B. Heitman, *Historical Register and Dictionary of the United States Army*, (Washington D.C.: Government Printing Office, 1903), 661.

⁴Charles L. DuFor, *The Mexican War, A Compact History, 1846-1848*, (New York: Hawthorn Books, Inc. 1968), 168.

⁵John S.D. Eisenhower, *So far from God, The U.S. War with Mexico, 1846-1848*, (New York: Random House, 1989), 332.

⁶Gustavus W. Smith, *Company "A" Corps of Engineers, U.S.A., 1846-1848, in the Mexican War*, (Willets Point, New York: The Battalion Press, 1896), 61.

⁷John C. Waugh, *The Class of 1846--From West Point to Appomattox: Stonewall Jackson, George McClellan and their Brothers*, (New York: Warner Books, 1994), 128.

⁸Smith, 61.

⁹Smith, 55.

¹⁰Smith, 55.

¹¹Waugh, 128.

¹²Henry C. Jewett, "History of the Corps of Engineers to 1915," *The Military Engineer* 14, September-October and November-December 1922, 305.

¹³William P. Seville, "Narrative of the March of Co. A, Engineers from Fort Leavenworth, Kansas, to Fort Bridger, Utah, and Return, May 6 to October 3, 1858," *Occasional Papers Number 48*, (Washington Barracks, D.C.: Press of the Engineer School, 1912), i.

GLOSSARY

- Bastion. A fortification work composed of two faces and two flanks and forming part of the major work. They are constructed so that the entire escarp may be seen.
- Battery. An emplacement for one or more pieces of artillery. Also refers to a set of guns or an artillery unit of company size.
- Blindage. Camouflage material placed in front of a firing position.
- Casemate. A vaulted chamber in the rampart with a port that permits artillery to be fired from it.
- Causeway. An elevated roadway, normally above a marsh or flooded field.
- Communications Trench. A trench excavated for the purpose of moving troops and supplies forward from the rear area to the front line trenches.
- Embrasure. An opening in the parapet that allows artillery to fire.
- Epaulement. A parapet, usually field expedient, thrown up in front of a ditch.
- Escarp. The inner wall, or face, of a ditch, below the rampart.
- Glacis. An elevated mound of earth on the enemy side of the ditch. The glacis slopes downward toward the enemy so that attackers are exposed during the assault.
- Line of Investment. The beginning position of forces conducting a siege. The line of investment typically surrounds or partially surrounds the fortification under siege.
- Parallel. A trench excavated by the besieging force parallel with the face or faces under assault. Successive parallels are normally dug closer and closer to the work and are connected by saps.
- Parapet. A mound or bank of earth over which a soldier may fire. In a permanent work the parapet caps the rampart. A parapet is also known as a breastwork.
- Rampart. A mound or bank of earth behind the ditch, typically formed from the earth excavated from the trench. On top of the rampart is the parapet.

Redoubt. A closed, independent work without bastions, usually of square or polygonal shape.

Revetment. Masonry or wooden faces retaining the earth sides of a trench or parapet.

Sap. A trench extended forward from a parallel with the intention of either constructing a fresh parallel or forming a starting point for an assault.

Sap and Parallel. A system of besieging a fortification, attributed to Vauban. The system consists of excavating alternate parallels and saps, each one closer to the enemy's works than the previous. This allows the assaulting troops to move close to the enemy's works while remaining under cover.

Sap-Head. The end of a sap. From the sap-head either a new parallel is excavated or the sap is brought to the surface for the assaulting troops.

Terreplein. An enlarged firing platform behind the rampart. The terreplein is formed to allow the artillery to fire over the parapet.

Tête de Pont. A fortification placed at the end of a bridge, blocking access to the bridge.

APPENDIX A
CHRONOLOGY OF EVENTS

1802

4 July U.S. Military Academy at West Point opens.

1845

4 July Texas accepts annexation.

25 July General Taylor's army arrives at Corpus Christi, Texas.

1846

25 Apr. Captain Thornton's force is ambushed, Brownsville, Texas.

8 May Battle of Palo Alto.

9 May Battle of Resaca de la Palma.

13 May United States declares war on Mexico.

15 May Congress authorizes Company of Sappers, Miners and
Pontoniers.

19 May Captain Swift officially given command of Company A.

28 May Company A's first enlistment--Artificer William D. Hurley.

12 Sep. Company A receives orders to Mexico.

20-24 Sep. Battle of Monterey.

24 Sep. Company A departs West Point.

12 Oct. Company A arrives at Brazos Santiago, Texas.

17 Oct. Company A departs Brazos Santiago.

2 Nov. Company A arrives at Camargo, Mexico.

29 Nov. Company A departs Camargo.
21 Dec. General Patterson begins march from Matamoros to Tampico.

1847

2 Jan. Difficult crossing of the San Antonio River.
4 Jan. Company A arrives at Victoria, Mexico.
13 Jan. Company A departs Victoria, Mexico.
14-17 Jan. Road work on the "Mule Path."
23 Jan. Company A arrives in Tampico, Mexico.
24 Feb. Company A travels from Tampico to Isle of Lobos, Mexico, on
 schooner *Orator*.
2 Mar. Company A departs Isle of Lobos on schooner *Orator*.
5-6 Mar. Company A arrives at Anton Lizardo, Mexico.
5-6 Mar. Lieutenant Foster Joins Company A.
8 Mar. Landing at Vera Cruz postponed due to poor weather.
9 Mar. Landing at Vera Cruz, Mexico.
10 Mar. General Scott begins Siege of Vera Cruz.
10-12 Mar. Engineers open road along line of investment.
13 Mar. Engineers cut Vera Cruz's water supply.
10-25 Mar. Engineers plan siege and build fortifications at Vera Cruz.
25 Mar. Vera Cruz surrenders.
29 Mar. U.S. and Mexican commanders agree to terms of surrender at
 Vera Cruz.
8 Apr. First American forces depart Vera Cruz.
13 Apr. Company A departs Vera Cruz.
16 Apr. Company A arrives at National Bridge, Mexico.
17 Apr. Colonel Harney captures La Atalaya, Mexico.

17 Apr. Engineers construct battery on La Atalaya.

18 Apr. Battle of Cerro Gordo.

18 Apr. Detachment of Company A conducts reconnaissance, close combat; Company A rejoins at Encero, Mexico; Company A leads march to Jalapa, Mexico.

20 Apr. Company A leads march from Jalapa to Puebla, Mexico.

24 Apr. Captain Swift dies in New Orleans, Louisiana.

25 Apr. Company A gains First Sergeant Hastings at Perote, Mexico.

7 Aug. Company A leads march from Puebla toward Mexico City, Mexico.

18 Aug. Company A leads General Worth's Division to San Agustín, Mexico; conducts reconnaissance; breaches obstacles.

19 Aug. Company A transfers to General Twiggs' Division; conducts road repairs; positions artillery; conducts reconnaissance.

20 Aug. Battles of Contreras and Churubusco.

20 Aug. Engineers gather General Cadwalader's lost troops; lead infantry units; participate in close combat at Contreras (Padierna), Mexico.

20 Aug. Engineers conduct reconnaissance; position artillery at Churubusco, Mexico.

24 Aug. General Scott establishes truce with General Santa Anna.

7 Sep. Truce broken; engineers move forward to Tacubaya, Mexico.

8 Sep. Battle of Molino del Rey.

8 Sep. Lieutenant Foster wounded at Molino del Rey, Mexico.

11 Sep. General Scott holds Council of War.

11-13 Sep. Engineers construct batteries at Chapultapec, Mexico.

13 Sep. Battle of Chapultapec.

13 Sep. Battle at Garita de San Cosme.

14 Sep. Capture of Mexico City.

13-14 Sep. Company A clears advance through buildings to Garita de San Cosme; conducts reconnaissance; clears buildings; and chases criminals in Mexico City, Mexico.

14 Sep General Scott begins occupation of Mexico City.

1848

2 Feb. Treaty of Guadalupe Hidalgo signed.

2 Feb. Lieutenant Smith turns command of Company A over to Lieutenant McClellan.

28 May Company A marches from Mexico City.

22 June Company A arrives at West Point, New York.

15 July Last U.S. troops leave Mexico City.

APPENDIX B

ROSTER OF COMPANY A, CORPS OF ENGINEERS IN THE MEXICAN WAR

| Name | Rank | Occupation, Home State | Enlistment Date, Place | Recruiting Officer | Remarks |
|---------------------------|-------------|-----------------------------|----------------------------|-----------------------|---------------------------------------|
| Adare, Samuel A. | Pvt. | Blacksmith Pennsylvania | 21 Aug. 46 Philadelphia | Swift | Discharged 12 Aug. 48 |
| Bartholomew, George W. | Pvt. | Upholsterer Pennsylvania | 8 Aug. 46 Philadelphia | Swift | Discharged 18 Sep. 46 |
| Bartlett, William | Cpl. | Millwright New York | 11 June 46 New York | Leadbetter | |
| Bont, Charles W. | Pvt. | Wheelwright New York | 3 June 46 West Point | Swift | Died 19 July 47 |
| Boomer, Benjamin L. | Pvt. | Painter Maine | 27 July 46 New Bedford | Cullum | |
| Branner, James | Pvt. | Stonecutter Pennsylvania | 2 Aug. 46 Philadelphia | Swift | Died 8 Sep. 47 |
| Chadbourne, Josiah P. | Pvt. | Farmer Maine | 18 Aug. 46 Portland | Stevens | Promoted 2d Lt. Inf. 31 Mar. 47 |
| Clark, Stephen C. | 1st Sgt. | Carpenter Maine | 16 June 46 West Point | Swift | |
| Clark, Ezra | Pvt. | Tinplater Maine | 25 June 46 Portland | Stevens | Discharged 26 May 47 |
| Coit, Benjamin W. | Art. | Carpenter Rhode Island | 30 June 46 Newport | Eustis | |
| Connor, John C. | Pvt. | Carpenter Maine | 24 June 46 West Point | Swift | |

| Name | Rank | Occupation, Home State | Enlistment Date, Place | Recruiting Officer | Remarks |
|-------------------------|------|----------------------------|---------------------------|-----------------------|--|
| Cutler, Chandler | Pvt. | Carpenter Vermont | 2 June 46 New York | Leadbetter | |
| Delaite, Lewis | Pvt. | Lumberman Maine | 10 July 46 Portland | Stevens | Discharged 24 Nov. 46 |
| Delano, David P. | Pvt. | Joiner Maine | 20 July 46 Portland | Stevens | Died Camargo |
| Delano, Issac N. | Pvt. | Farmer Maine | 7 July 46 Portland | Stevens | Discharged 1 July 47 |
| Eshelman, Aaron | Pvt. | Artist Pennsylvania | 2 Aug. 46 Philadelphia | Swift | Discharged 2 Aug. 46 (minor) |
| Esterbrook, James | Pvt. | Carpenter New York | 8 June 46 New York | Leadbetter | Discharged 24 Oct. 48 |
| Everett, Thornly S. | Sgt. | Soldier Virginia | 10 Oct. 46 Brazos | Swift | Promoted 2d Lt. Art. 28 June 48 |
| Foster, Charles W. | Pvt. | Shoemaker Maine | 1 June 46 Boston | Cullum | |
| Gerber, Frederick H. | Mus. | Musician Germany | 29 June 46 West Point | Swift | First Sgt. Maj. of Engr Bn, 1861 |
| Griffith, Orlando B. | Pvt. | Woodcarver Pennsylvania | 2 Aug. 46 Philadelphia | Swift | Promoted 2d Lt. Inf. 9 Apr. 47 |
| Hall, Augustus H. | Pvt. | Farmer Maine | 7 July 46 Portland | Stevens | |
| Holloway, Edwin M. | Pvt. | Farmer Massachusetts | 25 July 46 Taunton | Cullum | |
| Hull, William H. | Pvt. | Printer New Jersey | 9 July 46 West Point | Swift | Promoted 2d Lt. Inf. 3 Mar. 48 |
| Hurley, William D. | Art. | Hatter New York | 28 May 46 Boston | Reynolds | |
| Hussey, Augustus B. | Pvt. | Farmer Maine | 10 July 46 Portland | Stevens | Died (KIA) 8 Sep. 47 Molino |

| Name | Rank | Occupation, Home State | Enlistment Date, Place | Recruiting Officer | Remarks |
|-------------------------|------|---------------------------------|---------------------------|-----------------------|--------------------------------------|
| Kelly, Edward | Pvt. | Tailor New York | 2 Aug. 46 Philadelphia | Swift | Deserted 18 Sep. 46 West Point |
| Kennedy, James G. | Pvt. | Sailor Pennsylvania | 2 Aug. 46 Philadelphia | Swift | Discharged 31 Aug. 48 |
| Lawton, Thomas S. | Pvt. | Farmer Maine | 11 Aug. 46 Bucksport | Stevens | |
| Leslie, David Y. | Pvt. | Blacksmith New Hampshire | 8 July 46 Portsmouth | Stevens | Died 22 Jan. 47 Matamoras |
| Lothrop, Warren L. | Art. | Farmer Maine | 23 June 46 Portland | Stevens | Promoted 2 Lt. Art. 21 Feb. 57 |
| McClure, John A. | Pvt. | Ironworker New York | 2 July 46 New York | Leadbetter | Discharged 18 Aug. 48 |
| McFadden, Charles | Pvt. | Sawyer & Millwright Maine | 4 Aug. 46 Portland | Stevens | Died 20 Jan. 47 Matamoras |
| McGunnegall, Michael | Pvt. | Brassturner New York | 2 Aug. 46 Philadelphia | Swift | Discharged 27 Oct. 47 |
| Merrill, Benjamin H. | Pvt. | Pyrotechnist Maine | 14 July 46 New York | Leadbetter | Died 20 May 47 New Orleans |
| Miller, Jonathan | Pvt. | Blacksmith New Jersey | 7 July 46 New York | Leadbetter | Discharged 27 Oct. 47 |
| Monaghan, James | Pvt. | Millwright New York | 17 July 46 West Point | Swift | Deserted 13 Jan. 47 Matamoras |
| Monell, Frederick | Pvt. | Chairmaker New York | 20 July 46 West Point | Swift | |
| Mower, Joseph A. | Pvt. | Carpenter Vermont | 16 June 46 Boston | Cullum | Discharged 31 Aug. 48 |
| Nessel, Louis | Pvt. | Turner New York | 9 June 46 New York | Leadbetter | |

| Name | Rank | Occupation, Home State | Enlistment Date, Place | Recruiting Officer | Remarks |
|------------------------|-------|-------------------------------|---------------------------|-----------------------|--|
| Nowotny, Charles Y. | Mus. | Musician New York | 27 June 46 West Point | Swift | |
| Noyes, William H. | Art. | Harnessmaker Maine | 5 June 46 Boston | Cullum | |
| Pierce, Charles H. | Pvt. | Mason Massachusetts | 10 June 46 Boston | Cullum | |
| Pinker, Frederick | Pvt. | Ironmoulder Pennsylvania | 2 Aug. 46 Philadelphia | Swift | |
| Poetger, William | Pvt. | Architect Germany | 7 July 46 New York | Leadbetter | Died 11 Dec. 46 Matamoros |
| Porter, Charles F. | Pvt. | Machinist Pennsylvania | 2 Aug. 46 Philadelphia | Swift | |
| Ramsay, Joseph | Pvt. | Sapper & Miner Ireland | 19 June 46 New York | Leadbetter | Deserted 11 Aug. 46 |
| Reed, Nathan T. | Art. | Carpenter Massachusetts | 10 June 46 Boston | Cullum | |
| Regan, Peter C. | Pvt. | Carpenter New York | 25 July 46 New York | Leadbetter | |
| Sheldon, Ethan T. | Art. | Builder Rhode Island | 25 June 46 New York | Leadbetter | Died 9 May 47 Jalapa |
| Skinner, Edward | Pvt. | Shoemaker Massachusetts | 4 June 46 Boston | Cullum | |
| Smith, Jacob T. | Pvt. | Blacksmith Pennsylvania | 2 Aug. 46 Philadelphia | Swift | |
| Spring, Alpheus | Pvt. | Farmer & Surveyor Maine | 26 June 46 Portland | Stevens | |
| Starr, Samuel H. | Corp. | Soldier New York | 23 June 46 New York | Leadbetter | Promoted 2d Lt. Drag. 28 June 48 |
| Stocking, John | Pvt. | Carpenter New York | 8 June 46 New York | Leadbetter | |
| Taylor, Seth H. | Pvt. | Carpenter New York | 27 July 46 West Point | Swift | Died of wounds 15 Sep. 47 |

| Name | Rank | Occupation, Home State | Enlistment Date, Place | Recruiting Officer | Remarks |
|------------------------|-------|------------------------------|----------------------------|-----------------------|--|
| Thompson, Edward | Pvt. | Farmer Maine | 10 June 46 Boston | Cullum | Deserted 18 Dec. 46 Matamoros |
| Thompson, Albion P. | Corp. | Painter Maine | 10 June 46 Boston | Cullum | |
| Tidsmith, John | Pvt. | Printer Ireland | 29 June 46 New York | Leadbetter | |
| Tracy, John | Pvt. | Upholsterer Pennsylvania | 7 Aug. 46 West Point | Swift | Died 21 Apr. 48 Mexico City |
| Tuttle, Wallace R. | Art. | Lumberman Maine | 7 July 46 Portland | Stevens | |
| Twomly, James R. | Pvt. | Carpenter New Hampshire | 8 July 46 Portsmouth | Stevens | Discharged 7 Aug. 48 |
| Twomly, Sims F. | Pvt. | Boatman New Hampshire | 8 July 46 Portsmouth | Stevens | |
| Van Cott, John F. | Art. | Cook New York | 20 June 46 New York | Leadbetter | |
| Vansant, James B. | Pvt. | Cabinetmaker Pennsylvania | 2 Aug. 46 Philadelphia | Swift | |
| Vieregg, Charles A. | Pvt. | Harnessmaker Germany | 2 Aug. 46 Philadelphia | Swift | |
| Vogdes, Isreal | Pvt. | Carpenter Delaware | 2 Aug. 46 Philadelphia | Swift | |
| Weaver David P. | Pvt. | Stonecutter Pennsylvania | 21 Aug. 46 Philadelphia | Swift | |
| Wilson, Robert | Pvt. | Tailor Pennsylvania | 2 Aug. 46 Philadelphia | Swift | |
| Woods, Titus R. | Pvt. | Farmer Maine | 9 July 46 Portland | Stevens | Died 7 Dec. 46 Matamoros |
| Yeager, Hiram B. | Pvt. | Hatter Pennsylvania | 2 Aug 46 Philadelphia | Swift | Promoted 2d Lt. Drag. 29 Mar. 48 |

This roster is constructed from Dale R. Steinhauer's unpublished notes:
 "Corps of Engineers, A Company--31 August 1846."

BIBLIOGRAPHY

Books

Bauer, K. Jack. *The Mexican War, 1846-1848*. Lincoln, Nebraska: University of Nebraska Press, 1992.

History of the Mexican War that focuses as much on political as military aspects. Bauer covers events leading to war, the naval war, actions in the West to include California, Taylor's campaign, Scott's march to Mexico City, and the ensuing peace process. He includes 15 maps of major operations with resolution down to regimental level. Forty photographs depict key players and engravings of battles. The book is fully indexed and has a 39-page bibliography.

_____. *Surfboats and Horse Marines, U.S. Naval Operations in the Mexican War, 1846-48*. Annapolis, Maryland: U.S. Naval Institute, 1969.

Bauer tells the U.S. Navy's Mexican War story. He covers actions both in the Gulf of Mexico and off the coast of California. He lists most, if not all, of the ships by name and which army troops traveled on that particular ship. This, along with the order of battle he provides, makes it easy to follow his description of the landing at Vera Cruz. He does not provide a consolidated bibliography, but does give bibliographic notes for each chapter. Numerous useful drawings, tables and maps are given. This work is an extension of Bauer's 1953 Ph.D. Dissertation "United States Naval Operations during the Mexican War."

Beauregard, P. G. T. *With Beauregard in Mexico: The Mexican War Reminiscences of P. G. T. Beauregard*. Edited by T. Harry Williams. Baton Rouge: Louisiana State University Press, 1956.

Lieutenant Beauregard was an engineer officer and served under General Scott from Vera Cruz to Mexico City. Although he was not assigned to the engineer company, he did interact with them. Williams provides a twenty-two page introduction that gives the context for Beauregard's story. Beauregard wrote these memoirs in 1852 based on notes he kept during the war. The memoirs are indexed and a number of letters and maps are included.

Boynton, Edward C. *History of West Point and its Military Importance During the American Revolution and the Origin and Progress of the United States Military Academy*. New York: D. Van Nostrand, 1864.

As the Adjutant of the U.S. Military Academy, Boynton wrote the history of West Point from 1723, the year the land was first purchased, through 1863. He covers the academy's buildings, the administrators, academics, efforts during wars and cadet regulations. An appendix contains extracts of congressional acts that affect the academy, including those that authorized the engineer company. The text includes a fold-out map, an index and a series of advertisements for other D. Van Nostrand publications.

Burr, Edward. *Historical Sketch of the Corps of Engineers, United States Army, 1775-1865: Occasional Papers Number 71*. Washington D.C.: Government Printing Office, 1939.

Burr compiled this consolidated record of the Corps of Engineers in peace and war while he was the Commandant of the Engineer School. The paper gives names, dates and locations for all of the key events during this time period. Developments in the Corps during this time include the founding of the U.S. Military Academy at West Point and the birth and subsequent transformations of the Corps of Topographic Engineers. Burr dedicates six pages to the Mexican War, including a biographical sketch of each of the nineteen engineer officers that served in the war. A brief index at the end of the fifty-three page paper is helpful in finding information.

Davis, Franklin M., and Thomas T. Jones, eds. *The U.S. Army Engineers--Fighting Elite*. New York: Franklin Watts, Inc., 1967.

Davis and Jones have collected nineteen historical accounts of engineers and engineer missions from the Revolutionary War up through the Viet-Nam War as well as three brief glimpses into the future of engineering. The section dealing with the Mexican War is an excerpt from Gustavus Smith's *Company A Engineers in Mexico, 1846-1847*. A two-page forward explains the Corps of Engineer's close tie to the U.S. Military Academy at West Point.

Denslow, Van Buren. *Fremont and McClellan, their Political and Military Careers*. Yonkers, NY: Office of the Semi-Weekly Clarion, 1862.

Published in the second year of the Civil War, this text compares the military and political careers of George B. McClellan and John C. Fremont. Denslow presents the argument that peoples' perceptions of the two officers are partisan. Two sections of the book are of interest here: "McClellan at West Point," and "In the Mexican War."

Dufour, Charles L. *The Mexican War, A Compact History, 1846-1848*. New York: Hawthorn Books, Inc. 1968.

A secondary source which tells the story of the Mexican War in narrative form. Dufour does not attempt to take sides on the question of why the War with Mexico happened. His basis is official reports, published diaries and journals. The maps are excellent and are very useful in following the engineer company's progress. In addition to the maps, the book is indexed and has a bibliography.

Eisenhower, John S. D. *So far from God, The U.S. War with Mexico, 1846-1848*. New York: Random House, 1989.

Eisenhower tells the story of the Mexican War, beginning with the Alamo and ending with the Treaty of Guadalupe Hidalgo. The book is well documented, very readable and provides an excellent context for other, more specific, sources. There are mentions of engineer activities and engineer officers, although Company A is not mentioned by name.

Heitman, Francis B. *Historical Register and Dictionary of the United States Army, from its Organization, September 29, 1789, to March 2, 1903*. Washington D.C.: Government Printing Office, 1903; reprint, Urbana, Illinois: University of Illinois Press, 1965.

Heitman has assembled an impressive list of all commissioned army officers from 1789 through 1903. The bulk of the text is an alphabetical listing of the officers, with each entry citing the officer's state of birth, home state, West Point Class ranking (if USMA grad), promotion dates, brevet dates, other significant career events and date of resignation. Heitman also presents several other, shorter, lists, such as one with all general officers and another listing officers by regiment.

Hogg, Ian V. *Fortress: A History of Military Defense*. New York: St. Martin's Press, 1977.

Fortifications of a military nature can be traced back at least to the ancient city of Troy, circa 5000 B.C. Hogg quickly brings the reader up to the tenth century, A.D., and then proceeds to cover each major development, up through the post-WWII era, in fair detail. Advances in fortifications are understandably linked to developments in firepower, primarily artillery, and siege techniques, and these are covered as well. Hogg explains the techniques developed by Vauban, which are the techniques that were taught at West Point and used in the Mexican War. The text is liberally illustrated. References are not provided. However, there are an index, brief bibliography and useful glossary of fortress and siege terms.

Katcher, Philip R. N. *The Mexican American War 1846-1848*. London: Osprey Publishing Limited, 1976.

Part of the Osprey "Men-at-Arms" series, this book does not cover the battles, political context or major personalities, as others do. Instead, Katcher presents brief (two to three pages each) discussions of various aspects that made up the armies involved. Section headings include: "The Volunteers;" "The Infantry;" "The Staff;" and "The Mexican Army," among others. There is a single page entry which covers the Company of Sappers, Miners and Pontoniers, along with color plates depicting uniforms of an engineer sergeant and engineer field-grade officer. In all, there are twenty-four color plates and numerous other illustrations. The book's intended audience is military history buffs and military modelers. The work is not indexed and the "Select Bibliography" is too brief to be useful.

McClellan, George B. *The Mexican War Diary of George B. McClellan*. Edited by William S. Meyers. Princeton: Princeton University Press, 1917.

Lieutenant McClellan began his army career as an officer in Company A, Corps of Engineers. This diary begins with the departure of the company from West Point on 24 September 1846, continues through the battle of Cerro Gordo in April 1847, and ends with a few impatient complaints about the monotony of the peacetime army from 1849 and 1852. It gives a good picture of the engineer company and the land they fought in. McClellan also writes of the volunteers and his low opinion of them as compared to the regulars. Meyers gives a short synopsis of McClellan's personality and the controversy surrounding his career in the introduction. Meyers also includes a map of the area in which Company A operated, a copy of the first page from McClellan's original diary, and an index.

Miller, Robert R. *Shamrock and Sword: The Saint Patrick's Battalion in the U.S.-Mexican War*. Norman, Oklahoma: University of Oklahoma Press, 1989.

This is the story of the defection and subsequent fighting of American soldiers under the flag of the *San Patricio* (Saint Patrick's) Battalion. John Riley organized this special unit of the Mexican Army primarily from American deserters. They crossed paths with the engineer company at Churubusco. Members of the *San Patricio* Battalion were defending the convent that the engineers reconnoitered and subsequently attacked. The book lists all of the *San Patricios*, presents maps and engravings from the war, looks briefly at desertion in the U.S. Army over the years, and is indexed.

Morrison, James L., Jr. *The Best School in the World: West Point, the Pre-Civil War Years, 1833-1866*. Kent, Ohio: Kent State University Press, 1986.

The Military Academy was under the supervision of the Corps of Engineers from its founding in 1802 until 1866. This book looks at many aspects of West Point during the latter half of this period. There is a brief description of the origin of Company A and its immediate deployment to Mexico. Morrison presents a good overview of the different methods of commissioning officers into the army during this period.

Smith, Arthur D. Howden. *Old Fuss and Feathers, the Life and Exploits of Lieutenant General Winfield Scott*. New York: The Greystone Press, 1937.

About one-third of this text deals with the Mexican War. Smith presents the story with a very biased frame of reference. He refers to the Republic of Texas as a "stalwart joke" and to the war itself as the "rape of Mexico" and a "sad commentary upon humanity" (pp 240-242). Putting the bias aside, Smith does present useful aspects of the war: Scott's personality, his relationships with superiors and subordinates, and some of the rationale he used in making decisions. There are about a dozen illustrations and one useless map.

Smith, George W. and Charles Judah. *Chronicles of the Gringos*. Albuquerque, New Mexico: The University of New Mexico Press, 1968.

Smith and Judah present accounts of the Mexican War from combatants and other eyewitnesses. This is a record of the daily life of the soldiers that fought the war. There are several quotes from McClellan's writings and excerpts from a letter from a private in the engineer company concerning the Battle of Cerro Gordo. The work is indexed and annotated but does not contain a consolidated bibliography. Smith and Judah give woodcuts, drawings and maps, some of which are uncommon, but useful.

Smith, Gustavus W. *Company "A" Corps of Engineers, U.S.A., 1846-1848, in the Mexican War*. Willets Point, New York: The Battalion Press, 1896.

First Lieutenant G. W. Smith was with Company A from its founding through the Mexican War, initially as second-in-command, and, after Captain Swift's death, as commander. Smith wrote this account in 1896, fifty years after the war. In it he describes, in detail in most cases, operations involving the engineer company and its officers. The story begins with the organization of the company at West Point in May of 1846 and finishes with the company leaving Mexico City enroute back to West Point in May of 1848. Smith relates numerous conversations and detailed descriptions of events, however no references are provided. There are no maps or illustrations and the work is not indexed.

Traas, Adrian G. *From the Golden Gate to Mexico City: The U.S. Army Topographical Engineers in the Mexican War, 1846-1848*. Washington, D.C.: United States Army Corps of Engineers Office of History and the Center of Military History, 1993.

At the time of the Mexican War, the Corps of Engineers and the Corps of Topographical Engineers were separate and distinct organizations. Notable Corps of Engineer officers in the Mexican War included Robert E. Lee, P. G. T. Beauregard, and George B. McClellan. Officers in the Corps of Topographic Engineers included George G. Meade, Joseph E. Johnston and John C. Fremont. Traas relates the beginning of the Corps of Topographic Engineers, Fremont's expedition to California, actions in New Mexico, and activities with Taylor, Wool and Scott in Mexico. He provides a roster of all topographic engineers, maps and illustrations, a bibliography and an index.

Tutorow, Norman E. *The Mexican War: An Annotated Bibliography*. Westport, Connecticut: Greenwood Press, 1981.

An annotated bibliography of works concerning the Mexican War from May 1846 through February 1848 (the official time frame of the war). Categories include: reference works, manuscripts, government documents, records from the National Archives, periodical literature, books, theses and dissertations and miscellaneous works. Tutorow has also included several useful appendices including a war chronology, political and military organizations during the war, congressional votes on war bills, tables on

military strength and casualties, and twenty-one maps of the major battles. An introduction provides a contextual setting for the war and the bibliography is thoroughly indexed.

Walker, Paul K. *Engineers of Independence: A Documentary History of the Army Engineers in the American Revolution, 1775-1783*. Washington D.C.: U.S. Government Printing Office, 1981.

Walker provides a collection of letters and other documents concerning engineering in the Revolutionary War, 1775-1783. He has organized the documents by event beginning with General Washington's search for engineer officers and ending with post-war plans for a peacetime engineering establishment. The activities in Walker's book represent the seeds of the modern Corps of Engineers, and set the groundwork for engineer organizations in the War of 1812, the Mexican War and the Civil War. The items are fully indexed and a glossary and bibliography are included.

Waugh, John C. *The Class of 1846--From West Point to Appomattox: Stonewall Jackson, George McClellan and their Brothers*. New York: Warner Books, 1994.

This is the chronicle of the group of officers that were the West Point Class of 1846. The prominent members of the class included Stonewall Jackson, George McClellan, A. P. Hill and George Pickett. Waugh follows the class from before its arrival at West Point, through the academy and the Mexican War, and ultimately on to the Civil War. His focus is on the personalities and interactions. Military operations are discussed, but only to the extent necessary to support the development of the main characters. No maps are provided, which makes following Stonewall Jackson difficult; however, the entire book is well documented (53 pages of notes, 21 of bibliography and 29 of index) and is well illustrated (64 photographs).

Periodicals and Articles

Abbot, Henry L. "The Corps of Engineers." *Journal of the Military Service Institution of the United States* 15 (1894): 413-427.

Brevet Brigadier General Abbot gives a brief history of the Corps of Engineers up until 1894. Interesting peacetime activities are covered as are important congressional acts. A quick, but useful, overview of the combat activities of engineer troops is provided (the Mexican War is handled in two paragraphs). Some specifics are provided, such as a listing of the campaign streamers earned by the Engineer Battalion up through the Civil War. Abbot wants the reader to know that engineers are more than just technicians--they are also soldiers of the line. To prove his point, he lists seventeen officers who were killed or mortally wounded in battle from 1802 through 1894 and counts the number of engineer officers (thirty-three) who became general officers in the Civil War. His claim that engineers were soldiers of the line got the ire of at least one infantry officer. Brevet Colonel William Wherry, of the 6th U.S. Infantry, responds strongly in a later

issue of the same volume (pp. 562-564) that engineer soldiers are not "of the line."

Deacon, Kenneth J. "Combat Engineers [Essay #] 34: Siege of Vera Cruz, 1847." *The Military Engineer* 378 (July-August, 1965): 258.

A one-page summary of the events at Vera Cruz from an engineer's perspective. A small map showing the orientation of the siege works is provided. Deacon relates interesting problems faced by the engineers, such as their being tormented by fleas, as well as important operational matters, such as the use of ground-emplaced naval guns. No bibliography is provided, but it appears that Gustavus Smith's *Company A Engineers in Mexico, 1846-1847* is the primary, if not only, source.

Foote, S. M. "Based on Present Conditions and Past Experiences, How Should our Volunteer Armies be Raised, Organized, Trained, and Mobilized for Future Wars." *Journal of the Military Service Institution of the United States* 22 (January 1898): 1-49.

First Lieutenant Foote explores methods of mobilizing volunteer armies in times of need. He begins with a brief overview of how volunteers were raised during each of what Foote calls "the four great wars:" the Revolution, the War of 1812, the Mexican War and the Civil War. He also looks at the differences in commissioning officers and recruiting enlisted soldiers, how large an army can be fielded without calling for volunteers and the length of time necessary to train recruits. Finally, he presents a system for mobilization and compares it to the then current system.

Jewett, Henry C. "History of the Corps of Engineers to 1915." *The Military Engineer* 14 (September-October, November-December 1922): 304-06, 385-88.

Jewett presents, in seven pages, a concise history of military engineers from 1775 through 1915. He briefly mentions West Point, the topographic engineers and civil works programs as well as combat units such as Company A. While most of the information is available elsewhere, Jewett does offer one unique account, a quote which states that engineers were responsible for selecting places for lines and guns, guiding columns of troops and watching for vulnerable points in enemy lines.

Lott, W. C. "The Landing of the Expedition against Vera Cruz in 1847." *Journal of the Military Service Institution of the United States* 24 (1899): 422-428.

In 1852, a Navy Midshipman, William G. Temple, compiled a monograph detailing General Scott's landing at Vera Cruz on 9 March 1847. Quartermaster Sergeant W. C. Lott summarizes Temple's monograph in this 1899 article. Lott provides insights into the organization of landing parties (the troops were "brigaded" into divisions, each division taking ten ships), some of the problems encountered (some landing craft beached twenty yards short of the beach, forcing soldiers to wade ashore) and the results (twelve-thousand men and provisions ashore in four hours). The article is

a good technical introduction to what is arguably the most orderly amphibious landing in U.S. history.

McDonald, Archie P. "West Point and the Engineers." *The Military Engineer* 377 (May-June, 1965): 187-189.

This article presents a quick history of the early Corps of Engineers and its association with the U.S. Military Academy at West Point. Company A, Corps of Engineers, as well as other early engineer units and their roles are briefly mentioned. The main topics of the article are: the Military Academy, changes in the Corps of Engineers, Dennis Hart Mahan and effects on the engineering profession.

"Obituary: General Z. B. Tower." *Journal of the Military Service Institution of the United States* 26 (1900): 471.

A one-page summary of the army career of Zealous Bates Tower published on the occasion of his death, 21 March 1900.

Robinson, William M. "The Engineer Soldiers in the Mexican War." *The Military Engineer* 133 (January-February, 1932): 1-8.

Robinson gives a nice eight-page summary of the Mexican War exploits of the engineer company. He opens by recounting how the war began and gives a concise history of engineer organizations before 1846. The remainder of his paper is a digest version of Smith's *Company A, Corps of Engineers, in the Mexican War, 1846-1848*. He does add small pieces of information throughout, but does not reference his sources. Robinson's article is an excellent primer to Smith's more thorough account.

Government Documents

Abbot, Henry L. "Early Days of the Engineer School of Application." *Occasional Papers Number 14*. Washington Barracks, Washington D.C.: Engineer School of Application Press, 1904.

In 1866, control of the U.S. Military Academy (USMA) passed from the Corps of Engineers to the Department of War. The Corps of Engineers still had a need for an engineer school and thus established The Engineer School of Application at Willets Point, New York (later renamed Fort Totten, Willets Point was located in the Borough of Queens, New York City). Abbot outlines the strong relationship between USMA and the Corps of Engineers, the founding of the new school, and the major activities and academic pursuits up through 1885. These pursuits included the *Essayons* Club, military reconnaissance, field astronomy, tide and current measurements, military photography, and underwater mining, among others. This report was published by the Engineer School, after it had moved to Washington D.C., as one of its "Occasional Papers." The paper contains illustrations (which are illegible on microfilm); however, neither bibliography nor index are provided.

Humphreys, A. A. "Historical Sketch of the Corps of Engineers." *Historical Papers relating to the Corps of Engineers and to*

Engineer Troops of the United States Army: Occasional Papers Number 16, 1-54. Washington Barracks, D.C.: Press of the Engineer School, 1904.

Brigadier General Humphreys presents a chronology of the peacetime activities of the Corps of Engineers from its infancy in the American Revolution up through 1876. The sketch contains insight into the reasoning behind certain laws and regulations concerning the organization and administration of engineer units. Appropriate excerpts from congressional acts and official letters are included. A separate section details the history of the Corps of Topographical Engineers. The historical sketch was written on the occasion of General Humphreys delivering his recommendation for the future organization of the Corps of Engineers, which is included as the final portion.

Kreidberg, Marvin A., and Merton G. Henry. *Department of the Army Pamphlet No. 20-212, History of Military Mobilization in the United States Army 1775-1945.* Washington D.C.: U.S. Government Printing Office, 1955.

Provides a record of U.S. military mobilization up through World War II, with a primary focus on manpower aspects of mobilization. Chapter III covers the Mexican War, and the authors give a brief overview of events leading up to the war, description of mobilization planning and execution, discussions of the composition of the forces, and a short listing of lessons learned from the War with Mexico. There are numerous tables and fold-out organizational charts and a bibliography. There is no index.

Seville, William P. "Narrative of the March of Co. A, Engineers from Fort Leavenworth, Kansas, to Fort Bridger, Utah, and Return, May 6 to October 3, 1858." *Occasional Papers Number 48.* Washington Barracks, D.C.: Press of the Engineer School, 1912.

Seville presents the story of the engineer company's travel to Utah in 1858 as part of the Army's response to federal problems with the Mormon community in the that territory. The engineers marched over two-thousand miles and built roads and bridges along the way. The relationship of this report to the Mexican War exploits of the company is solely as a postscript.

Thian, Raphael P. *Legislative History of the General Staff of the Army of the United States (its Organization, Duties, Pay, and Allowances), from 1775 to 1901.* Washington D.C.: Government Printing Office, 1901.

A compilation of congressional resolutions, provisions and acts affecting the U.S. Army. The entries are chronological within branch of service. General provisions are provided in Chapter I and those pertaining to the Corps of Engineers are in Chapter IX. Although the entries are sometimes abridged, the congressional discussions which justified the various acts, are left intact.

Thompson, Gilbert. "The Engineer Battalion in the Civil War: A Contribution to the History of the United States Engineers." *Occasional Papers Number 44.* Revised and rewritten by John W. N.

Schultz. Washington Barracks, D.C.: Press of the Engineer School, 1910.

At the beginning of the Civil War, the troops of the Corps of Engineers consisted only of Company A. Two congressional acts in August 1861 authorized three new companies of engineers and a company of topographic engineers. These companies, along with Company A, came to be known as the Battalion of Engineers, although they were not officially designated as such until July 1866. Thompson prepared this report from written reports and other information provided by officers who were in the field and from journals and letters from soldiers of the time. He provides a day-by-day account of the major campaigns of the war in which the engineers participated. Although some entries are brief (the 20 December 1862 entry, for example, simply states "Bitter cold."), most of the entries give considerable detail with names, places and locations. Maps and illustrations are provided, including a large fold-out map of the entire territory of operations of the Engineer Battalion in the Civil War. The work is not indexed and references are infrequent.

U.S. Army Corps of Engineers Historical Division and Public Affairs Office. *The History of the U.S. Army Corps of Engineers, Engineer Pamphlet EP360-1-21*, 1986.

This pamphlet provides an overview of the Corps of Engineers from the Revolutionary War up through the 1980's. It begins with a set of historical milestones and proceeds to present several pages on each of the major milestones. Civil works are covered along with the combat experiences. The text is brief and liberally supported by pictures. The pamphlet closes with short histories of the engineer castle and button, profiles of all of the Chiefs of Engineers and a short, but useful, bibliography of the Corps of Engineers.

U.S. Army Corps of Engineers Museum. *Genesis of the Corps of Engineers*. Fort Belvoir, Virginia: Corps of Engineers Museum. 1953(?).

The Engineer Museum published this pamphlet on the occasion of its opening of a new museum. The first half provides a concise history of the Corps of Engineers including early engineer units. The remainder of the material is a set of biographical sketches of the Chiefs of Engineers up through 1953.

U.S. Congress. House. *A Report on the route of General Patterson's division from Matamoros to Victoria, and of the troops detached from General Taylor's army from Victoria to Tampico*. Report prepared by Gustavus W. Smith. 31st Congress, 2nd Session, 1850. House Executive Document No. 13.

Four years after the march from Matamoros to Tampico, Smith relates the story of that march to Congress. The report is in the form of a diary of the journey, and contains more detail of the surrounding terrain but less of the color of his better known *Company A, Corps of Engineers, in the Mexican War, 1846-1848*. Smith gives distances marched each day, descriptions of natural resources such as ponds, and limited descriptions of the work done.

Smith sums up the entire experience as "bad roads and hard work." Included is a detailed map of the route of march.

Youngberg, G. A. *History of Engineer Troops in the United States Army 1775-1901*. Washington Barracks, Washington D.C.: Engineer School Press, 1905.

This history details the major activities and organizations of engineer units in the U.S. Army from the Revolutionary War through the Philippine Insurrection. It is particularly useful in studying the development of engineering organizations and their activities in that period because the author gives separate chronologies of each of the companies as well as that of the Engineer Battalion. Youngberg also provides rosters of all of the First Sergeants and Sergeants Major, highlights from the monthly returns, information on the uniforms, colors and ceremonies of the period, and several letters from the Engineer Battalion's "Letters Sent" book. Of special interest is the final appendix which is a roster of all officers who served with Company A from May 24, 1846 through 1901. Each section contains a short bibliography. There are no illustrations and the work is not indexed.

Unpublished Materials

McClellan, George B. "The Papers of George B. McClellan." Library of Congress Manuscript Division. [Microfilm] Combined Arms Research Library, Fort Leavenworth, Kansas, 1977.

This massive collection of George B. McClellan's papers covers the period 1823 to 1898 and fills eighty-two reels of microfilm. The approximately 33,000 items, originally occupying over forty feet of shelf space, include correspondence, military papers, diaries, speeches, and manuscripts. Most of the materials concern McClellan's Civil War service from 1861 to 1862. The papers include letters he wrote as a cadet at West Point and as an engineer lieutenant in Mexico. One of the included diaries covers the Mexican War. McClellan was quick to put pen to paper, and, thus, many of the letters and diary entries reflect his emotions and opinions of the time.

McCoun, Richard A. "General George Brinton McClellan; from West Point to the Peninsula; the Education of a Soldier and the Conduct of War." Ph.D. Dissertation, California State University at Fullerton, 1973.

McCoun presents McClellan in a new light. Typically seen as a procrastinator or an incompetent, McCoun claims McClellan is one of the period's least understood individuals. He attempts to discover what made McClellan think the way he did. Naturally, part of McClellan's formative years were 1846-48--the Mexican War. About fifty pages of the dissertation recount McClellan's experiences in Mexico. This short narrative makes a good bridge between secondary sources such as Bauer's or Eisenhower's and the more detailed journals of Smith and McClellan.

Riese, Stephen R. "The Effect of the American Civil War on U.S. River Crossing Doctrine." Evolution of Modern Warfare Term Paper, U.S. Army Command and General Staff College, 1995.

Examines and compares three river crossings in U.S. Army history: the crossing of the James River in the American Civil War, the attempted Rapido River crossing in World War II and the Naktong River crossing in the Korean War. Does not concern the Mexican War, except to state that the Civil War was the first time that the army saw large scale river crossing operations.

Steinhauer, Dale R. "Sogers: Enlisted Men in the U.S. Army, 1815-1860." Ph.D. Dissertation, University of North Carolina at Chapel Hill, 1992.

Steinhauer examines the enlisted soldiers of the U.S. Army between the War of 1812 and the Civil War. As this period includes the Mexican War, the dissertation is extremely relevant. Because of their unique composition, the engineer company receives special attention. Steinhauer covers all aspects of recruiting the soldiers in this time period, including the impacts of social influences such as the large immigrant population in the United States at the time.

_____. "Corps of Engineers, A Company--31 August 1846." Unpublished notes.

An alphabetical listing of the seventy-three members of Company A that were recruited in 1846. Steinhauer lists each soldier's name, grade, date of enlistment, location of enlistment, roll, page and line number where this soldier can be found in the microfilm version of the Register of Enlistments of the U.S. Army, recruiting officer, and state or origin. Steinhauer also annotated each soldier's former occupation and whether the soldier died or was promoted during the war.

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